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A Lecture

ON THE

RÔLE OF THE CARDIO-VASCULAR SYSTEM IN PULMONARY TUBERCULOSIS.

Delivered at the Brompton Hospital for Consumption and Diseases of the Chest on Nov. 5th, 1912,

BY SIR R. DOUGLAS POWELL, BART., K.C.V.O., M.D. LOND., F.R.C.P. LOND.,

PHYSICIAN IN ORDINARY TO THE KING; CONSULTING PHYSICIAN TO BROMPTON AND MIDDLESEX HOSPITALS, ETC.

GENTLEMEN,—The diagnosis and treatment of pulmonary tuberculosis are based upon an intimate knowledge of the pathology of the disease and the life-history of the bacillus responsible for it. I propose to-day to review from the cardio-vascular standpoint some of the problems that present themselves for consideration in the course of practice

DESTRUCTION OF BLOOD-VESSELS IN TUBERCULOUS LESIONS.

The minute vessels are attacked very early in the lesions of tuberculosis and the tuberculous nodule is distinguished from all other growths by the early destruction of vessels and the caseation and necrosis which ensue. If you examine a gumma or a carcinomatous or sarcomatous growth you find it highly vascular, permeated by small vessels, in notable contrast to the area of hazy, bloodless, degenerating structure that occupies the central portion of a tuberculous nodule.[1] Much of the symptomatology of phthisis is built upon this fact: early hæmoptysis yielded by the rupture of softened fine vessels and capillaries, or from the stress of capillary circulation around an area of obstruction; rapid caseation and softening of the tuberculous foci; sphacelus at points of the pleural surface overlying nodules of tubercle resulting in rupture and pneumothorax, and so on, are all consequences of this early and intimate factor in its pathology.

In another aspect this precedent destruction of vessels in the lesions of tuberculosis is of advantage to the patient, for, were it not so, fatal hæmorrhage would be a very frequent termination of advancing cases of the disease. If you examine a lung the seat of tuberculous excavations you will observe that the trabeculæ, coarse and fine, which stretch across the cavities consist for the most part of obliterated vessels, large and small, which have become converted into fibrous bands, many of them broken across with their ends projecting free into the cavities. In some cases of very acute pneumonic phthisis the consolidation about the tuberculous centres softens down so rapidly as to break away the support from the vessels and cause their rupture before the larger of them have had time to become occluded, and severe or fatal hæmorrhage occurs from a broken vessel stretching across such cavities.

In other cases, generally of very chronic excavation, fatal hæmoptysis is brought about in another way. A large branch of the pulmonary artery skirts the wall of a chronic cavity and is laid bare at one point by the excavating process and thus becomes the seat of chronic fibroid arteritis. The side of the vessel exposed in the cavity is always thickened, but it is also softened and its elasticity destroyed; it gradually yields towards the cavity, forming a sacculated aneurysm which finally ruptures. This is the almost constant cause of profuse and fatal hæmorrhage in advanced phthisis, and is illustrated by these amongst many other beautiful specimens in our museum.

PULSE-RATE AND BLOOD PRESSURE.

The heart's action is almost invariably quickened in tuberculosis. In only a very few cases even of but very slightly active or incipient disease do you meet with a slow pulse. A slow pulse when met with is always of good augury, and in some obscure and border-line cases it would tell with considerable force in favour of the case not being one of tuberculosis. Quickening of the pulse-rate may be said generally to apply to all acute diseases in which there is active absorption of bacterial products, contrasting in this respect with some other forms of toxæmia. The pulse, besides being quick, is, as a rule, small in phthisis, and especially in the more acute forms of the disease.

The systemic blood pressure ranges rather low in some acute cases of tuberculosis, but may recover almost, if not quite, to the normal in chronic and quiescent cases. I say *systemic* blood pressure because it is probable that the pulmonary arterial pressure is at least relatively high. Dr. Spengel has found on an examination of 50 cases of early phthisis that the blood pressure is, even at this stage, constantly lowered. He places it at 59·7 to 87 mm.,[2] with daily variations of from 10 to 35 mm., arising from meals, emotion, fatigue, &c., these variations being greater than they would be in health and also different in kind. Both lowering of pressure and acceleration of pulse-rate become more marked as the case advances. He does not regard the lowering of pressure as dependent upon failure of heart power, but agrees with Burghardt[3] in attributing it to the action of the tuberculous virus, and quotes Gieszböck[4] as having found in a series of cases that after an injection of

TABLE SHOWING BLOOD PRESSURE IN ACTIVE AND QUIESCENT DISEASE.

Active Disease.

Age and condition of patient.	11 A.M. B.P.	11 A.M. Pulse.	11 A.M. Temperature.	5 P.M. B.P.	5 P.M. Pulse.	5 P.M. Temperature.	Mean B.P.
Male, aged 17; signs well marked; lesions active.	92	—	—	80	—	—	88·7
	88	—	—	90	—	—	
	92	106	99°	86	120	100°	
	86	108	99·2°	88	124	100·2°	
Male, aged 45; extensive lesions; active.	90	—	—	98	—	—	96·5
	98	—	—	96	—	—	
	100	110	98°	98	110	101°	
	90	112	97°	102	106	97·8°	
Female, aged 25; lesions extensive; active.	100	108	101·4°	100	120	102°	96·2
	92	112	101·2°	96	120	102°	
	96	100	100°	100	124	100·6°	
	98	100	99°	94	126	100·4°	
Female, aged 29; lesions extensive; early subacute.	110	110	98·8°	114	100	99·6°	97·2
	110	118	98·4°	80	104	100°	
	70	70	98·4°	100	90	99·4°	
	90	100	96·4°	100	100	99·5°	

Quiescent Disease.

Female, aged 35; extensive lesions; inactive.	138	125	98°	130	112	98·4°	131
	140	132	98°	122	112	97·6°	
	136	128	98°	130	126	98·4°	
	132	132	97°	120	120	97·8°	
Female, aged 34; extensive lesions; inactive.	120	130	98°	110	116	98·4°	116·2
	122	128	98°	128	112	98·4°	
	122	80	98°	90	88	98·4°	
	120	128	97°	118	92	97·2°	
Female, aged 34; excavation one apex; quiescent.	136	96	98·4°	130	80	98·8°	126·2
	118	108	98°	100	84	98·8°	
	126	90	97·8°	140	96	98·4°	
	140	84	98°	120	92	97°	
Male, aged 25; lesions extensive; quiescent.	130	96	98°	134	100	99°	123·8
	110	100	97°	122	96	98·4°	
	120	112	97·2°	131	100	98°	
	126	96	97·8°	118	92	98·4°	

[1] Sections illustrative of these points kindly prepared by Dr. A. C. Inman were shown on the screen with the epidiascope.

[2] Dr. Spengel, it should be noted, adopts rather a low estimate of normal systemic blood pressure, 90 to 105 mm. Hg: he uses Gärtner's tonometer. His observations were on early cases of tuberculosis. Über Blutdruckerniedrigung bei beginnender Lungentuberkulose, Wiener Klinische Rundschau, Nos. 20, 21, 22, 1912.

[3] Burkhardt: Untersuchungen über Blutdruck und Puls bei Tuberculösen in Davos.

[4] Gieszböck: Die Bedeutung der Blutdruckmessung für die Praxis, Deutsches Archiv für Klinische Medicin, Band lxxxiii., 1905.

old tuberculin the pressure fell as much as 40 mm. of mercury. This is in accordance with my own recollection of some cases of severe collapse following upon large doses of tuberculin which were used in the first days of Koch's treatment of lupoid and other forms of tuberculosis.

Dr. D. Kennedy, Dr. S. G. Johnson, and Dr. F. C. Cowtan, house physicians at the hospital, have been kind enough to make some blood pressure observations, using Riva Rocci's sphygmomanometer, in acute and chronic cases of pulmonary tuberculosis. Of 18 observations, 8 were in cases in which the disease was either acute or in an active phase, and the mean pressure was found to be 102·5 mm. Hg, lowest 88·7 mm. Hg, highest 123 mm. Hg. Ten cases were non-febrile and chronic or quiescent, of which the mean pressure was 113·3 mm. Hg, highest 131 mm. Hg, lowest 101·1 mm. Hg. I have here tabulated on the screen four fair examples from each group (see Table). I believe these to represent the real condition of blood pressure in phthisis, but further observations are needed.

The immediate effect of moderate exercise upon the pressure is illustrated by these charts, by which you will see

FIG. 1.

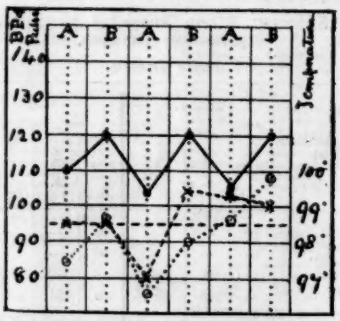


Chart of blood pressure in a case of quiescent tuberculosis before and after exercise. Blood pressure ●—— (A, before exercise; B, after exercise). Pulse rate, O..... Temperature, X— —.

FIG. 2.

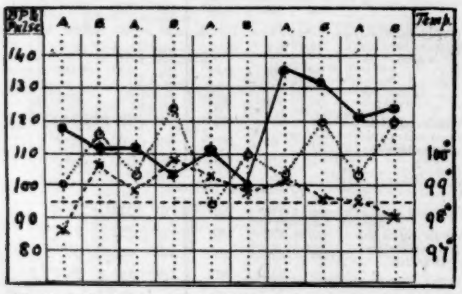


Chart of blood pressure in tuberculosis before and after exercise. Blood pressure ●—— (A, before exercise; B, after exercise). Pulse rate, O..... Temperature, X— —.

that in quiescent cases (Fig. 1) after slight exercise the blood pressure is raised, whilst in acute cases (Fig. 2) it is lowered.

There is no doubt that a good range of blood pressure is a favourable symptom in tuberculosis, and a rise in the pressure in the course of the disease is an indication of improvement and of favourable augury in prognosis. But as I have always insisted in lectures and in the successive editions of my work, we have by way of warning to bear in mind the increasing blood pressure in the lungs in the reparative stage of chronic phthisis. With the increasing weight, well-being, and general blood volume of convalescents, perhaps making rapid weight under a very liberal dietary, the blood pressure in the pulmonary arterial system increases out of proportion to that on the systemic side. To whatever bulk the blood may attain it must all be forced through the pulmonary vessels to maintain the balance of the circulation, and in cases of arrested disease in which there has been a considerable destruction of lung texture and an obliteration of considerable tracts of the pulmonary vessels, it is easy to understand what a burden this may become upon the right heart and what a strain upon the pulmonary vessels.

This is no theoretical matter. I have seen many cases of tuberculosis in which under rest and air and food treatment the body-weight has increased far beyond that normal to the patient in health; these people, who may be "the picture of rude health," are plethoric far beyond their lung capacity, and are breathless and liable to hæmorrhage and other accidents. It is in this regard that the more modern treatment, based, with improvements, upon the system of Walther of Nordrach of combining rest with graduated exercises suitable to each case, has been so beneficial. In suitable cases and within proper limits the effect of exercise is to draw and retain a larger proportion of blood into the muscular system and so to lessen blood volume in the pulmonary vessels.

CONDITION OF HEART.

There is not much information, so far as I know, in literature with regard to the condition of the heart in tuberculosis, and still less as to the relative dimensions of the two sides of the heart and as to the relative blood pressures in the pulmonary and systemic circulations. The general view is that the heart is wasted in tuberculosis, and Dr. C. T. Williams in his work on "Diseases of the Lungs" speaks of the heart as more or less wasted, and quotes the late Sir Richard Quain to the effect that it is degenerated. Dr. Spengel refers to the fact that the heart is often abnormally small in phthisis and is sometimes affected with "brown atrophy," although it appears that he does not attribute the diminished blood pressure to this cause. My own impressions, based upon the recollection of a large experience of post-mortem observations made at this hospital and upon clinical experience, would lead me to a different conclusion; but unfortunately I have not recorded any weights or measurements of the organ. I have always held the belief that the heart in pulmonary tuberculosis did not partake in the wasting of other muscles, and although perhaps not absolutely of normal weight, was yet relatively, or perhaps more than relatively so in relation to the body weight. My impression clinically, too, is that the right side of the heart is relatively somewhat enlarged and thickened in the chronic forms of the disease.

Dr. C. E. Lakin has been kind enough to take out 20 cases of necropsies of tuberculosis from the post-mortem notes of the Middlesex Hospital in which, in accord with the usual routine, the weight of the heart was entered. They were 14 males and 6 females, and their ages varied from 22 to 64, the average being 39. I have excluded two cases in which the weights were excessive—17 oz. and 16 oz. respectively—in one of which it was not clear that the patient actually died from the tuberculosis, and the heart was dilated and fatty; in the other there was fatty infiltration. Excluding these, in 9 cases the weight of the heart exceeded 10 oz., the average being 13½ oz. In 9 cases it was less than 10 oz., with an average of 8½ oz. The average of the whole series, excluding the two cases above named, would be just under 11 oz. The only notes appended to the heart were of two cases described as presenting "tabby-cat" degeneration weighing respectively 6 oz. and 15½ oz., and one case spoken of as "flabby," in which the weight was 8½ oz. In the other cases there was nothing specially to remark about the heart.

Twenty consecutive cases of deaths from malignant disease were taken out for comparison, all above the age of 20, the mean age being 51. In 11 cases, 6 males and 5 females, the weight of the heart was less than 10 oz., the mean weight being 8½ oz. In 9 cases, 6 males and 3 females, the weight was at or above 10 oz., mean 12½ oz., the mean weight of the whole series being 10½ oz. "Brown atrophy" was noted as present in 4 cases, three of which weighed 7 oz. and one 5½ oz. The organ is described as "fatty" in one case weighing 14 oz.

Taking into account what I have just said respecting blood pressure and the state of the heart in pulmonary tuberculosis, I think the conclusion is that consumptives on the whole have a much better circulation than they are given credit for, that their hearts are relatively good, and that a low blood pressure in them is mainly attributable to depressed cardiac function from excessive absorption of bacterial products, this view being in accord with Dr. Spengel's observations. It is very rare, even in acute cases,

to meet with anything approaching the heart failure so often observed in enteric fever or diphtheria, although, as I have pointed out, it may be witnessed after excessive doses of tuberculin.

I am not aware of any examination of the relative pressures in the two circulations in tuberculosis and do not see quite how the examination of the pulmonary arterial pressure could be made in the human subject.

Effect of Collapsed Lung on Pulmonary Circulation.

The accompanying diagram (Fig. 3) illustrates some experiments which I made soon after I first joined this hospital on the effect of ordinary collapse and pressure from

Fig. 3.

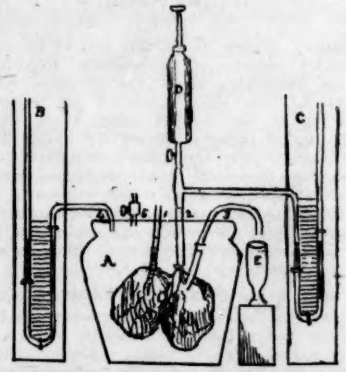


Diagram.—Lungs of a dog suspended in Jar A by trachea 1 attached to tubing which passed through bladder diaphragm. The pulmonary artery is similarly secured to tube 2, into free end of which is inserted the nozzle of an injecting syringe. Tube 3 is attached to the pulmonary veins and by its free end discharges into a measure vessel E. Tube 4 communicates with the interior of jar and with manometer B. Tube 5 similarly communicates with jar and has free opening externally provided with stop-cock. 1. Lungs moderately expanded and Tube 1 clipped; bullock's blood injected through pulmonary artery at pressure of 1½ in. Hg as recorded by manometer C, filled vessel to given mark through pulmonary veins in 50 sec. 2. Lung allowed naturally to collapse, injection at same pressure filled vessel to same mark in 50 sec. 3. Lung compressed by air pumped into jar through Tube 5 to pressure of ½ inch Hg recorded by manometer B; injection at same pressure used before (1½ in. Hg) filled vessel to given point in 60–70 sec. Tube 1 then clipped and stop-cock 5 opened; the lung was thus maintained collapsed, but without external air pressure; a marked retardation in filling vessel was still observed (later experiments).

These experiments were made with the kind assistance of Dr. Green and the late Alexander Bruce.[5]

pneumothorax in obstructing the circulation through the lung, and these experiments might be repeated to compare the pressure necessary to maintain a current of blood through a tuberculous lung and a healthy one.

Contracted and Fibroid Lung producing Cardiac Irritability.

In some cases of advanced but quiescent phthisis you meet with great irritability of the heart, with attacks of palpitation or disturbed action easily provoked by exertion, emotion, or dyspepsia, disturbances attended with great distress, sometimes with almost anginal suffering. These are cases of one-sided disease—usually the left side—in which the lung has become extremely damaged with considerable cavitation, and has then in the healing process become fibroid and contracted, with dense thickening of the pleura. The margin of the lung recedes from the surface of the heart, leaving the pericardium exposed directly beneath the flattened chest wall. The chest wall is drawn in, the diaphragm drawn up; the heart, displaced to the left and upwards, is closely surrounded on three sides by dense unyielding structures; whilst the opposite healthy lung is compensatorily enlarged and extends beyond the median line. In right-sided cases the heart assumes a more vertical position than natural, and is drawn to the right and upwards. The heart is thus cramped on all sides in a restricted chamber with rigid parietes, instead of being surrounded by resilient structures whose peripheral influence is aspiratory to its cavities.

[5] Notes on the Pneumothorax occurring in Phthisis, Medical Times and Gazette, January and February, 1869.

I have here on the screen an X ray photograph of the perfectly normal contents of the chest in their natural position. I will next show a diagram which is an outline representation of an actual case. (Fig. 4.) You will note the lowered left shoulder, the flattened side, the narrowed costal angle, F, all resulting from the contraction of an excavated, A, fibroid lung with densely thickened pleura, B, which is retracted away from the surface of the heart towards the axillary line. The pericardium thus uncovered is in close contact with the front wall of the chest, the heart is displaced to the left, its apex, D, raised, and the diaphragm drawn upwards. The right lung compensatorily hypertrophied and only slightly affected at the apex, H, extends across the median line. Thus is the heart enclosed in a narrowed tenement, stiffened and unyielding on all sides, conditions which render it liable to great embarrassment from slight causes of disturbance. Here, again, is a skiagram, also kindly taken for me by Dr. Melville from a patient in Dr. P. H.-S. Hartley's ward, showing similar conditions from

Fig. 4.

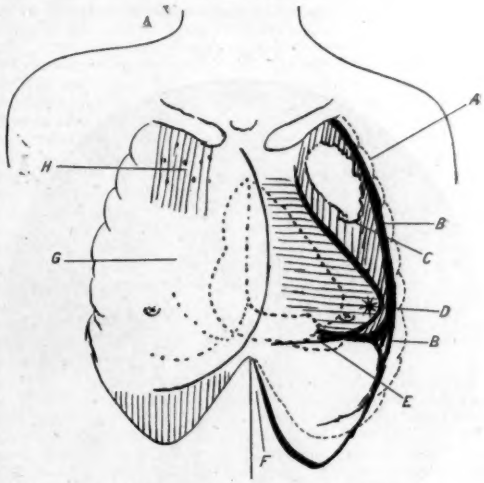


Diagram representation of a case of arrested pulmonary tuberculosis with fibroid contraction of greatly damaged left lung. A, normal position of left thoracic wall outlined. B, B, Retracted chest wall. C, Condensed left lung retracted from heart with cavity and densely thickened pleura. D, Heart displaced to left and upwards, pericardial surface exposed by retraction of lung. E, Diaphragm drawn upwards on left side and stomach raised. F, Left costal angle narrowed. G, Right lung enlarged, extending to left of mediastinum. H, A few crepitations at apex.

contraction of a lung, with cavities mainly in the lower lobe, and here are three more skiagrams showing varieties of the same condition.

Effect of Circulation on Auto-inoculation.

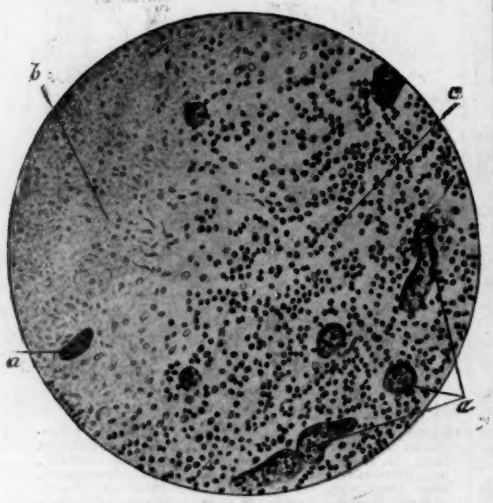
Let me pass now to one other aspect of my subject—perhaps the most important in its practical bearings—viz., the influence of the circulation upon auto-inoculation in tuberculosis.

Let me draw your attention again to a microscopic section (Fig. 5). I have already alluded to it as showing a focus of caseating tubercle surrounded by a vascular area. The marginal zone surrounding the tuberculous caseous centre, as you know, contains tubercle bacilli which are active or sluggish according to the activity of the disease. In chronic and quiescent cases they are still there, secreting toxines in a more or less languid manner, and an area of bacillary infiltration surrounding each focus may thus be regarded as charged with, if I may so describe them, stagnant bacterial products which may not get at all into the general circulation, or so gradually and in such small quantities as to cause little or no constitutional disturbance. But if in such patients you replace quietude by activity, or moderate activity by harder labour, you do two things: (1) you raise the circulatory activity and blood pressure in these perifocal zones, hastening the blood

currents and the lymph streams, and so bring about increased absorption of the bacillary products; and (2) increased disturbance in these areas is further caused by increased movement of the lungs from the hurried breathing.

It is by these mechanisms combined, but principally the vascular disturbance, that auto-inoculation is brought about in tuberculosis, and it was after this fashion that Dr. M. S. Paterson explained what he had previously found by careful observation, that by graduated labour in the sanatorium at Frimley he could bring about certain regulated degrees of auto-inoculation, and so obtain gradual immunity in tuberculosis by progressive stimulation of phagocytic action and of other agencies antagonistic to the bacillus. We shall not forget that to the original researches of Sir Almroth Wright and his colleagues we essentially owe our knowledge of the pathology of immunity. For the practical application of that knowledge, and for an important contribution to it from the clinical side, we are greatly indebted to the original experiments of Dr. Paterson on the use of graduated labour in tuberculosis, and to the bacteriological researches of Dr. Inman in coöperation with him. You may have watched in your experience many cases of tuberculosis in

FIG. 5.



From a section of caseous centre with adjacent vascular area (pulmonary tuberculosis). × 260. A, A. Patent blood-vessels. B, Caseous mass. C. Zone of infiltration around the caseous centre. (Section prepared by Dr. A. C. Inman.)

which, without any definite sanatorium or rest treatment having been pursued, a gradual development of immunity has occurred. I have seen such cases in which the patients have lived long and died from other diseases. But for the cases that have acquired immunity in this haphazard peripatetic way many more have failed that might perhaps have been saved with the more scientific insight into their pathology that we now possess.

In active cases these focal zones are constantly discharging doses of bacterial toxins into the general circulation, causing febrile phenomena and active wasting. We must in such cases do our utmost to rest the lung movements and to quiet the circulation through the diseased areas by the most absolute quietude we can command, and by restraining the rending movements of cough by suitable sedatives. There is no doubt that the effect of an increased blood current through these focal areas is also to stimulate the lymph streams, which are importantly concerned in the absorption of bacterial products. But the effect of exertion upon the temperature is so rapid that it is clear that the excited blood current is the immediate means by which the toxines are taken up.

I have only lightly touched upon this problem of auto-tuberculinisation to complete the picture of the rôle of the cardio-vascular system in the intimate pathology and as bearing upon the treatment of pulmonary tuberculosis.

A Lecture
ON THE
CLINICAL SIGNIFICANCE OF DIFFERENT FORMS OF REGULAR TACHYCARDIA.

Delivered at University College Hospital on Nov. 13th, 1912,

BY THOMAS LEWIS, M.D. LOND., D.SC. WALES, M.R.C.P. LOND.,
LECTURER IN CARDIAC PATHOLOGY, UNIVERSITY COLLEGE HOSPITAL MEDICAL SCHOOL; PHYSICIAN TO OUT-PATIENTS, CITY OF LONDON HOSPITAL.

GENTLEMEN,—I have chosen this subject for my lecture to you to-day because of its practical importance and because our knowledge of it has increased very much of late years. The main thesis of my lecture is the differentiation of the several chief types of regular tachycardia, for all tachycardias are not alike. They have dissimilar causes, their significance is different, and the patients in whom they occur require management which discriminates. It would serve no useful purpose to relate all those conditions in which tachycardia may appear; I shall consequently refer to the more notable examples, and shall make use of those which will serve as illustrations in a broad survey of the subject.

THREE TYPES OF REGULAR TACHYCARDIA.

The forms of regular cardiac acceleration which I propose to discuss are three. The first, which is most familiar to you, will be spoken of as the simple or physiological type of tachycardia. The last two forms are subdivisions of a single class—namely, the pathological type of tachycardia; they may be termed simple paroxysmal tachycardia and auricular flutter.

A.—Regular Tachycardia of Physiological Type.

1. *Simple tachycardia.*—You are aware that the normal heart beat starts in the neighbourhood of the mouth of the superior vena cava, and that a specialised structure, the sino-auricular node, is responsible for it. The rate at which impulses are generated in this region is usually stated at 72 per minute for the normal adult. The rate rises as a result of exercise, emotion, fever, and other causes; it is similarly affected in exophthalmic goitre, in chronic alcoholism, pulmonary tuberculosis, and other toxic conditions. Now all these accelerations of heart-rate are of essentially the same type. We may not understand the exact manner in which the accelerations come about in individual cases, but we recognise the fundamental qualities which all hold in common—the rate of impulse formation in the region of the superior vena cava is increased, and both auricles and both ventricles participate in the altered rate. It may be that the acceleration is due to decreased vagal or increased sympathetic tone; such explanations are easy to offer and often most difficult of proof. It may be that the tissue which forms the impulses is affected by increased temperature, or that foreign substances floating in the blood stream play upon it. Whatever the mechanism, the fact remains that we have to do *with a simple exaggeration of a normal phenomenon.*

Now, if a patient comes to us and exhibits an acceleration of the heart's action of this type, how is it to be recognised? Very readily. Such tachycardias behave in a definite fashion and have definite physical signs associated with them. To choose an example: patients who are suffering from active tuberculosis of the lungs usually show tachycardia, and they will visit an out-patient department or surgery with the ventricle beating at 120, 140, or even 160 or 170 per minute. In exophthalmic patients the rates reached may be even greater. You may recognise what you are dealing with in the heart at once, though you may not at first find its cause. And you recognise it in the following manner. The heart-rate falls conspicuously when the patient lies down, it rises when the erect posture is reassumed, and it is increased by exertion and by excitement. These are simple facts and long known, yet their value in diagnosis has not been recognised. In no case of tachycardia, unless the cause is unmistakeable, should the variations of rate

escape notice; they are of the highest importance in discriminating the forms of tachycardia. A heart rhythm which shows simple acceleration may usually be identified in this fashion. True, it is unwise to employ the posture tests or that of real exercise in those who are gravely ill. But similar reactions will be seen in these subjects too. The pulse is, generally speaking, at its fastest when the subject first takes to bed, and a progressive decline of rate is noticed for a few hours or a few days; accurate readings will often show regular variations of rate with meals, at visits, or during the change from wakefulness to sleep. These are natural reactions which apply to accelerated hearts as well as to those which beat at normal rates. You will immediately realise their diagnostic value when I speak of regular tachycardias of a totally distinct type.

B.—Regular Tachycardias of Pathological Type.

2. *Simple paroxysmal tachycardia.*—The tachycardia of which I have spoken is, as I have said, a mere exaggeration of a normal phenomenon; it consists of an increase in the rate of impulse formation at the normal centre, the sino-auricular node. Beats of the heart which are of this kind may be portrayed diagrammatically. In Fig. 1 you see two rectangles, joined by a short bridge, and these represent auricle and

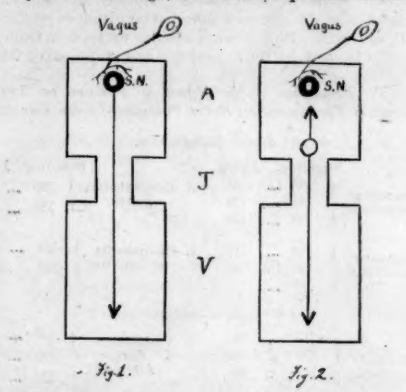


Fig. 1. Fig. 2.

Fig. 3. Fig. 4.

Fig. 5. Fig. 6.

ventricle respectively, united by the special junctional tissues. The sino-auricular node is indicated at the upper end of the figure (by the heavy circle), and the course of the normal contraction wave—through the auricle, the junctional tissues, and ventricle—is depicted by means of a single arrow.

A heart beat of this kind can be readily identified by means of electric curves taken from the human body. The auricular portion of the curve is an upwardly directed summit called P. The ventricular portion of the curve consists of a number of deflections which are labelled Q, R, S, and T. (Fig. 3.) The shape of this curve, taken from the right arm and left leg, depends upon the direction of the contraction wave in the heart; change the direction of the contraction wave in any part of the heart and you alter the type of curve obtained. We have in electrocardiograms a valuable and the only method of estimating whether an individual heart beat has been propagated along normal channels or not; or, what is almost equivalent, the only means of ascertaining whether a given heart beat arises in the normal centre or outside it; for if the beat arises in an abnormal centre the course of the contraction wave is necessarily altered and the beat gives rise to an abnormal type of curve. Let us suppose that a heart beat arises in some new focus in the auricle, such as I have indicated by the thin circle in Fig. 2. then the contraction wave will spread in a reversed direction in the auricle, but along the normal paths in the ventricle, as indicated by the arrows. The electrocardiograms will be modified, the auricular portion will undergo a decided change, while the ventricular portion will remain unaltered. (Fig. 4.)

The second kind of tachycardia is of this type and typifies the pathological forms of tachycardia; it arises, not at the normal centre, but at some point away from it, and the new centre is usually an auricular one. It occurs in short or long paroxysms, whence the term which describes it. But these are not the sole characteristics of this form of tachycardia, although they are amongst its chief ones. When simple tachycardias come and go, they come and go gradually; the pathological types of tachycardia appear and disappear *abruptly*. When they start, they start at the full rate; when they end, they disappear instantly and entirely, and the normal rhythm is immediately resumed. I may represent the pulse-rate in the two conditions so far considered diagrammatically. Two patients develop tachycardia for a short or long period; both eventually experience a return to the normal heart action. In the one the tachycardia is of the simple form and the changes in pulse rate are gradual (Fig. 5); in the other it is of the pathological type and the changes in pulse rate are abrupt (Fig. 6). You will notice that I have sometimes drawn the lines of the diagrams in clear-cut fashion, at other times they are wavy. When the line is wavy, I mean to express the natural and small fluctuations of pulse-rate which occur when the heart beats originate in the normal centre. When the heart contractions arise in a new centre (as in Fig. 2), this new centre is far less under nerve control than is the natural one. It so happens that when a pathological tachycardia develops its rate is surprisingly constant; changes of rate in response to rest, posture, exercise, and other influences do not occur, or, if they occur, are almost negligible by comparison. The importance of these facts will be emphasised when we deal with the clinical distinction of the two conditions.

3. *Auricular flutter.*—It is not certain that the third type of tachycardia is strictly separable from the last when the two are considered from the standpoint of pathology, but a clinical separation is needful at the present time. Simple tachycardia in adults rarely, if ever, exceeds 200 per minute in rate; usually it lies below 180. Simple paroxysmal tachycardia exhibits similar rates; they lie between 110 and 200. The third type of acceleration of which I now speak is that in which the rate surpasses 200, the maximal known limit being 335 per minute. Excessive rate is the chief characteristic. Like those of simple paroxysmal tachycardia, these new rhythms arise in the auricle, and probably away from the normal centre; they also start and finish abruptly; they are also uninfluenced by posture, exercise, and other similar factors to a remarkable degree.

In addition to the excess of rate which is exhibited, auricular flutter differs from the last group (simple paroxysms) in two respects. Although the rate of auricular contraction is extreme, being usually between 270 and 300 per minute, it is but rarely that the ventricle keeps these paces. In most instances this chamber beats at half the auricular rate, and the grade of acceleration is thus disguised. While the auricle beats regularly at 300 per minute, the ventricular beats may be regular at 150 or 75 per minute, according to the ratio of contraction rates in the two chambers. The responses of the ventricle may be regularly to each second or fourth auricular contraction, but they may also be uneven, so that irregular pulses, either fast or slow, are developed.

The chief reason for the separation of "auricular flutter," as it is termed, from the simple forms of paroxysmal tachycardia is that it is more closely related to the condition which is known as auricular fibrillation, and that in many instances flutter may pass, or may be forced by digitalis administration, into fibrillation. Simple paroxysmal tachycardia does not show this change so readily.

THE RECOGNITION OF THE DIFFERENT TYPES OF TACHYCARDIA.

When a patient comes to you and exhibits tachycardia, of whatever grade, the examination should always proceed along certain lines. Your first care should be the separation of the physiological and pathological types. I have already indicated how this may be accomplished. If the tachycardia is of simple form you may expect (1) that when the patient rests the rate will fall considerably; (2) that when he lies down it will fall some 10 or 20 or more beats per minute, and that when he stands again it will rise to, or almost to, the original rate; (3) that it will be enhanced by exercise; (4) that it will show other and similar reactions in relation to emotion, meals, fever, and sleep; (5) that the electrocardiograms will be of normal type; and (6) that the onset and termination will be gradual. If, on the other hand, you have to deal with a pathological type of tachycardia, you may anticipate an absence of all the signs already mentioned, a surprising constancy of rate under widely different conditions, an abrupt onset and offset, and finally abnormal electrocardiograms, which will generally tell you that the acceleration is the result of activity of a new impulse centre. These are the physical signs which will stand you in good stead when you are confronted with tachycardia, as you often will be. You may also be guided by physical signs in other organs, but these should be looked for later. The first and most important step is to distinguish the type of tachycardia with which you deal by examination of the heart.

If it is of the simple and physiological kind, then you search your patient for all those causes which you know can be responsible. Exophthalmic goitre may be evident, there may be clear signs of pulmonary tuberculosis, when your patient first comes to you. Of the directions of your search when fever is present I need not speak in detail; you will look for foci of infection. But you should not exclude such infection if fever is absent. Many tuberculous patients have no fever by day, even when up and about, and yet present tachycardia. A number of other chronic infections, especially local ones, run an afebrile course. Pyorrhœa, septic tonsils and adenoid disease, septic piles and cystitis should not escape you if present. Persistent tachycardia in a florid and tremulous subject suggests alcoholism. Tachycardia of this simple form is also seen in a number of other conditions, but I will content myself with reminding you that it is seen in heart disease, especially in infective endocarditis and in mitral stenosis where there is dilatation; but simple tachycardia should never, in the absence of other signs, suggest a cardiac lesion; that is the important practical point. And dilatation of the heart is usually to be regarded as secondary to tachycardia rather than the cause of it. Again, if no foci of infection or other simple reason for the acceleration is evident, you may discover the cause in the temperament of your patient or in his nervous system.

But if you discover that the tachycardia is of what I term the pathological type, then you may regard your patient as a cardiac case. You will be aided in its identification by your patient's symptoms. You will often hear a history of attacks in which the heart beats fast and leads to intense palpitation and symptoms of exhaustion and cardiac dilatation. The patient should be questioned most closely as to the nature of the onset and offset of his attacks; they come abruptly, and the relief of symptoms is also abrupt and not gradual. You cannot be guided far by the length or by the frequency of attacks as related in the history. They may have a duration of a few seconds or months, or even years. They may be only occasional, or they may be frequent. If you are fortunate you may yourself observe the onset or offset (Fig. 7); if you do, you will obtain the most positive evidence of the nature of the malady; but as a rule you will have to rely on the statements of the patient and upon examination made during the progress of an attack. And do not forget that the history may fail you entirely, for it happens that certain of these patients are quite oblivious to the rapid heart action when it occurs. It is then that careful examination of the tachycardia itself becomes your chief standby.

The two forms of new rhythm, simple tachycardia and auricular flutter, are not as a rule distinguishable by the usual clinical methods. Both show a similar exemption from nerve control. (Table I.) If a patient has a pulse of 150 per minute and the tachycardia is of the pathological type, a positive decision as to the rate of the auricle is usually impracticable without graphic records. Electrocardiograms give you the distinction between all three types of tachycardia immediately. (Figs. 8, 9, and 10.)

TABLE I.—*Examples of the Effect of Posture on Different Forms of Tachycardia (Rates Calculated from Curves).*

Simple Tachycardia.

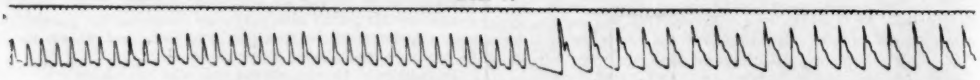
	Standing.	Lying.		Standing.	Lying.
1. Pulmonary tuberculosis.	142	133	3. Exophthalmic goitre.	180	145
	144	130		176	147
	143	129			
2. Pulmonary tuberculosis.	150	117	4. Tachycardia of emotion.	141	135
	134	116		142	127—125
	127				

Pathological Tachycardias.

1. Paroxysmal tachycardia.	195*	190	3. Auricular flutter (pulse-rate).	132	133
	200*	199		132	132
	197*	203		133	130
	199*	187			
2. Paroxysmal tachycardia.	205	213	4. Auricular flutter (pulse-rate).	125	124
	209	204		124	124
	204	210		122	125
	212	212		123	124

* While the rates prevailed the patient was sitting.

FIG. 7.



A pulse curve showing the abrupt manner in which a simple paroxysm of tachycardia terminates at its passage to the normal heart action.

Do not allow yourself to assign a greatly accelerated heart action to acute dilatation of the heart; the acute dilatation is, as I have said, generally secondary to the rapid action. And be warned especially against such diagnoses as "cardiac neurosis" or "irritable heart"; these are terms employed for conditions of which we have no real knowledge, and they serve too often only to disguise the true nature of the malady by promoting a false sense of knowledge and security. You will have heard of Da Costa and his reports of his soldiers' hearts. These reports were well enough 40 years ago, but to-day will not stand critical examination. He attributed the tachycardia with which he met to "functional disorder," but his writings make it abundantly clear that he dealt with several distinct types of cardiac acceleration, and a number of his patients were, or had been, the subjects of those infectious diseases which are prevalent during campaigns, and which in themselves would directly explain many of the phenomena of which he speaks.

The actual rate of the pulse, if the patient is in bed, may help in the discrimination. Simple tachycardia is rarely maintained in a patient who is at rest at a greater rate than 140. If the rate is persistently above this you are almost certainly dealing with tachycardia of the pathological type. If it lies between 170 and 200 you may be almost certain that you have not to deal with flutter, for the auricle is not known to beat at rates which surpass 340, and when flutter is present you will remember the pulse generally beats at but half the rate of the auricles. In distinguishing the two forms of pathological tachycardia you may be prompted by the duration. When the tachycardia is of long standing, if it is prolonged for weeks, for months, or for years, the condition is probably flutter. If there is a fall of pulse-rate upon digitalis, and the pulse become first irregular, and perhaps subsequently regular again, the condition is almost certainly flutter. And, on the other hand, if this reaction fails when large doses of digitalis are administered, flutter is almost

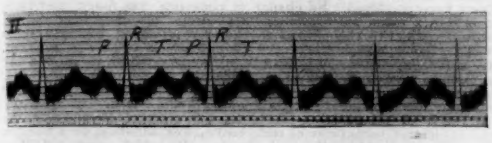
certainly absent. These are the chief features which enable you to arrive at a correct conclusion.

THE MANAGEMENT OF TACHYCARDIA.

It would be an impossible task for me to deal at all fully with the symptoms which tachycardia brings in its train, neither could I make you adequately conversant with the full *rationale* of prognosis and treatment in the present lecture. Each would require a separate lecture of its own. But that the importance of a thorough knowledge of tachycardia may be impressed upon you it may be expedient to outline quite briefly the reaction of these hearts to remedies employed. And, finally, if I quote to you a few of the cases which have come within my personal experience, these patients will serve to show you in what different guises the affection may present itself, how easily you may be led into error, and what steps you should take to avoid mistakes.

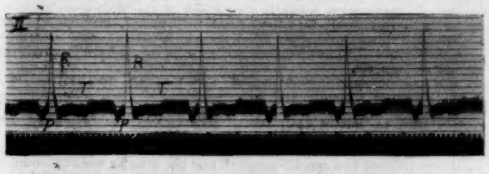
As I have told you, when you have to deal with simple tachycardia, your attention should no longer centre upon

FIG. 8.



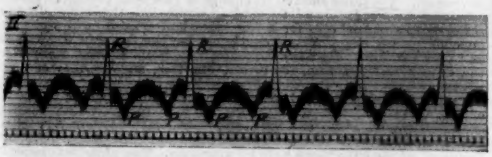
An electrocardiogram showing an acceleration in a case of exophthalmic goitre to 153 per minute. The curve shows summits (P = auricle, R and T = ventricle), which are of normal outline. The time-marker is in 1/30 seconds.

FIG. 9.



An electrocardiogram from a simple paroxysm of tachycardia (rate 130 per minute). P is inverted and shows an abnormal, though auricular, origin of the heart beat.

FIG. 10.



An electrocardiogram showing auricular flutter. The rate of auricular contractions (P) is 315 per minute, the ventricle (R) beats at half this rate.

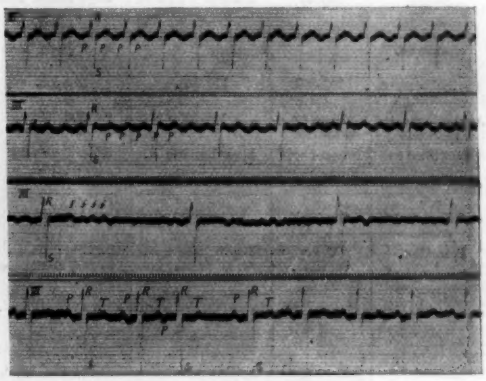
the heart. The rapidly beating organ becomes simply an indicator; it tells you that somewhere in the body mechanism as a whole a screw is loose, and your search, though it does not avoid the heart, should be equally distributed. The discovery of an enlarged thyroid, signs of intoxication, an actual focus of infection, or instability of the nervous system, will bring you to your goal; and it is not my province to teach you what remedies to employ or what counsel to give when acceleration of the heart is brought about through these agencies. But if, as will frequently be the case, the tachycardia is of the pathological order, then the further examination of the heart is your chief task. Your patient may require help in three directions. He will wish to know his prospect; he will desire a remedy which will relieve or abolish the attack which is upon him at the time; and he will expect some guidance in the avoidance of future and similar crises. Your knowledge of simple tachycardia will aid you but little in these respects.

The prognosis of pathological tachycardia will be twofold: it must concern the present attack and forecast the subsequent course of the patient. If you are certain that you are dealing with simple paroxysmal tachycardia, you can generally assure the subject of it that the attack will end within a few days, though patients sometimes succumb in attacks, yet the paroxysms when considered individually are rarely fatal. The fatal attacks are generally those in which the ventricular rate is highest and in which early signs of exhaustion manifest themselves.

The forecast of the future requires more consideration, and it may be well to delay it until you have had an opportunity of seeing your patient between attacks, and this is advisable in that the paroxysms often mask physical signs or are responsible for them. It is arrived at, first, by estimating the power of endurance of the heart muscle, an estimate which may take you far afield, but which should not omit a careful consideration of the symptoms in response to effort, the size of the heart, and the presence of valve lesions. Secondly, you have to consider the frequency and duration of the attacks and the rate of the heart beat during them. Lastly, the reaction of the heart to the paroxysm itself may be of great aid in your conclusion as to the burden which the organ can bear.

The immediate treatment of a simple paroxysm of tachycardia is usually expectant and symptomatic. A number of

FIG. 11.



Four electrocardiograms from the same case, taken on Nov. 26th and Dec. 4th and 11th, 1911, and Jan. 6th, 1912, respectively. They show the action of digitalis upon auricular flutter. In the first curve the auricle is beating at 293 per minute and the ventricle at 146·5. In the second curve the auricle beats at 288, the ventricle at 72. In the third curve the auricle is fibrillating and the ventricle responding slowly and irregularly at about 44 per minute. The last curve, after digitalis had been stopped, shows the normal sequence of chamber contraction, both auricle and ventricle beating at 90 per minute.

remedies are vaunted as successful for the severe attacks, but none are reliable in terminating a paroxysm. I have seen attacks cease abruptly after the application of an ice-bag to the chest, or after the injection of digitalin or strophanthin; but more often these remedies fail. Rest, as absolute as possible, either sitting or lying, according to the patient's comfort; a restricted, fluid and albuminous diet; the employment of bromides, chloral, or even opiates for the induction of the oft-needed sleep, are the most important indications.

The treatment of the malady as a whole is largel governed by the condition of the heart between the paroxysms. Close inquiry may reveal exciting causes of the attacks; sudden exertion or emotional[1] disturbances may be the chief

[1] Exertion and emotion also promote simple tachycardia; in the case of paroxysmal tachycardia they are not to be regarded as the cause of the attacks, but as the factors which eventually determine them in a susceptible heart.

provocations of the crises; discontinuance of active employment may become imperative. Cleanliness of mouth and throat, orderliness of the dietary, the remedying of dyspeptic troubles and constipation may ward off the crises. Some patients are aided by the wearing of a tight abdominal belt.

The prognosis and treatment of auricular flutter should proceed upon similar lines, but there is one important addition. Flutter is a disorder which is much more liable to be long continued; as a general rule it has not the same spasmodic tendency. It is more serious, and once established may, by persisting for months or years, completely disable the subject of it for long periods. The ventricular rate is usually raised, lying between 130 and 170 per minute; the rate is then one-half the auricular. The administration of digitalis in full doses is often an invaluable remedy when such is the condition. A fall of ventricular rate as a result of an increased grade of heart-block may be almost confidently anticipated. No case, as far as I know, has yet failed to react in this fashion; and the lowering of ventricular rate promotes ventricular rest and alleviates the symptoms. Moreover, in a large percentage of cases, the drug abolishes the auricular acceleration, producing auricular fibrillation;

TABLE II.—*Showing the Chief Features of the Three Types of Tachycardia.*

	Simple tachycardia.	Paroxysmal tachycardia.	Auricular flutter.
Point of origin.	In normal region.	Usually in auricle away from normal region.	In auricle; probably away from normal region.
Sequence of chambers.	Normal.	Usually normal.	Usually 2 : 1 heart block; may be 4 : 1 or mixed.
Auricular rates (standing).	100–200	110–200.	200–335.
Auricular rates (after rest).	Usually below 140.	110–200.	200–335.
Reaction to posture, exercises, emotion, &c.	Present and considerable.	Absent or slight.	Absent or very slight.
Offset and onset.	Gradual.	Abrupt.	Abrupt.
Duration.	Very variable.	Usually the separate paroxysms are fairly constant in length; variable from subject to subject; usually less than 10 days.	Variable; usually weeks, months, or years.
Electrocardiograms.	Of normal type.	Of abnormal type.	Of abnormal type.
Mechanism of production.	Through cardiac nerves, or as reaction to poisons, &c.	Probably results primarily from disease or malnutrition of cardiac musculature.	Probably results primarily from disease or malnutrition of cardiac musculature.
te of lesion.	Usually not cardiac.	Probably always primarily cardiac.	Probably always primarily cardiac.
Relation to auricular fibrillation.	None.	Probably an early step on the way to.	Very close.
Reaction to digitalis.	,,	As a rule none; ends spontaneously.	Degree of block increased, with fall of pulse-rate and development of irregularity. Often passes into fibrillation, with subsequent return of the normal rhythm.
Immediate treatment.	Varies with cause.	All remedies uncertain.	Administration of digitalis in full doses with object of producing fibrillation.

and if the drug be withdrawn when this change of mechanism has been accomplished, the heart resumes, not the state of flutter, but a perfectly normal rhythm (Fig. 11). As an accompaniment of these changes circulatory embarrassment speedily resolves itself, and a conspicuous improvement of the general condition is manifest.

ILLUSTRATIVE CASES

CASE 1.—A working man of 37 years came complaining of attacks of palpitation of 5 or 10 minutes' duration, which were induced by excitement. They had interfered with his work by creating anxiety as to the state of his heart. He had been treated for two months in a London hospital without improvement. He was in an attack at the time. Upon examination the pulse was beating regularly at 156 per minute. The heart's limits were normal to percussion, and there were no cardiac murmurs. After a short rest the pulse fell to 142; it fell further by ten beats when he lay down, and it rose again when he stood. The electrocardiograms were of perfectly normal type. Cross-examination and a thorough search failed to reveal the cause, but as the tachycardia was evidently of the simple form, recourse was again had to the history. He was a man who showed considerable reserve, and it was some while before the simple explanation of the affection transpired. The man had a morbid fear of our profession, and the tachycardia was solely due to this cause. He could suffer no examination without an immediate development of cardiac acceleration of this exceptional grade. Reassurance produced its effect, and when he left my room his pulse-rate was 120 and still falling.

CASE 2.—A patient was admitted to hospital in the last month of pregnancy. She was cyanosed and orthopnœic. The liver was enlarged and the veins of the neck were dilated. The heart's dulness was considerably enlarged, and a soft systolic murmur was present at the apex. A diagnosis of "acute dilatation" of the heart had been made, and her condition was regarded as a most serious one. She had been in bed for some hours when I saw her, and the pulse had maintained its rate at 200 per minute, the ventricular action being regular. This in itself was a suggestive circumstance; consequently postural tests were employed. No change of pulse-rate was found, and upon this sign a paroxysm of simple tachycardia was diagnosed, and an abrupt change to the normal rhythm was predicted within a short while. Subsequent events proved the correctness of this assumption, for a few days later the heart rate suddenly dropped to 70, and her symptoms were almost immediately relieved. A healthy child was born, and she left the hospital. After the attack had ceased a presystolic murmur became evident; it was obscured by the attack.

CASE 3.—A patient whom I had known for a long while, and who was the subject of paroxysms of tachycardia, was admitted to a London institution in one of his usual attacks. He could speak but little English. He showed his customary symptoms and signs: a pinched and anxious face, tinged with jaundice; breathlessness; continual retching and vomiting; complained of great pain over the chest, and especially over the right hypochondrium; a rapid and feeble pulse. The abdomen was swollen and rigid, and there was great tenderness below the ribs of the right side. A laparotomy was performed, and nothing but an engorged liver was discovered. Within a few hours the pulse dropped to a normal rate and became full. A paroxysm of tachycardia associated with acute engorgement of the liver and symptoms referable to the gastro-intestinal tract had ended, and the patient experienced almost immediate relief, and, fortunately, made an uninterrupted recovery. A knowledge of tachycardia would have obviated this mistaken diagnosis.

CASE 4.—A young female patient was admitted to hospital with urgent dyspnœa, cyanosis, and a rapid, feeble pulse. The heart beat at 180 per minute; there were no murmurs. Fine râles and feeble breath sounds were audible at both bases. Pneumonia was diagnosed, but within 24 hours the pulse had dropped to normal, and she lay perfectly comfortable in bed. It was, I believe, her first attack. She was afterwards transferred to a special hospital, and the attacks were thoroughly investigated. They were characteristic of simple paroxysmal tachycardia, and should not have been mistaken.

CASE 5.—A patient came to my out-patient department suffering from dyspnœa, dropsy, albuminuria, rapid heart action, and suppression of urine. The heart was dilated; there were no murmurs; the pulse was regular and full, and its rate was 160. He had been ill for four weeks, when puffiness of the eyes, swelling of the feet, and breathlessness developed. The pulse showed no change of rate with posture. He was admitted to hospital, and soon after admission the pulse dropped abruptly to a normal rate for a few beats and started at the old rate once more. Short paroxysms continued for the space of some weeks and then subsided. He was discharged from hospital much improved; the dropsy had left him, his breath was free, and the flow of urine normal.

CASE 6.—An elderly man was admitted to hospital with a pulse-rate of 150. I saw him a week later; he was dyspnœic and slightly cyanosed, the liver was enlarged, and there was commencing ascites. The symptoms were of two months' duration. The heart limit was increased to the left; there were no murmurs. The pulse was remarkably constant from day to day, and there was little or no change of rate with posture. The electrocardiograms showed an auricular rate of 300. He was placed on full doses of digitalis, and a few days later the pulse became irregular but somewhat slower. The rate continued to fall, and the pulse became perfectly regular at 75. Electrocardiograms taken at this time showed that the auricles still beat at 300, though the rapid action could be detected by no other means. The digitalis was maintained and auricular fibrillation developed; the drug was then discontinued. Within a few days a perfectly natural heart action became restored. The flutter, which had probably been present for several months, had vanished as a result of the drug treatment, and he left hospital of a good colour, the breathlessness, cyanosis, and liver enlargement having disappeared. The curves of Fig. 11 are from this case.

CASE 7.—A woman aged 43 was admitted to hospital suffering from breathlessness, cyanosis, commencing dropsy, and liver engorgement. Her history of illness was of three months' duration. The ventricular rate was 156 per minute. Electrocardiographic examination showed that the auricles were beating at 312 per minute. Digitalis was administered in 10-minim doses of the tincture (t.d.s.), and the pulse became irregular and slower; the digitalis was increased to 15 minims, and the ventricular rate dropped to 81 and became regular. Nevertheless, electrocardiographic examination showed that the auricular rate was maintained, being actually 324 per minute. The digitalis was consequently increased to 20 minims. A few days later fibrillation of the auricles ensued, and, the digitalis being withdrawn, a perfectly normal heart action was restored. The patient left hospital some weeks later in this state, the breathing being free and the cyanosis gone, and showing no trace of dropsy or venous or liver engorgement.

NOTE ON THE OCCURRENCE OF THE CHOLERA VIBRIO IN THE BILIARY PASSAGES.

BY E. D. W. GREIG, M.D., D.SC. EDIN.,

MAJOR I.M.S.; ON SPECIAL DUTY FOR THE CHOLERA INQUIRY OF THE INDIAN RESEARCH FUND ASSOCIATION.

IN the course of my research on cholera I have been investigating systematically the relationship of the cholera vibrio to the bile and biliary passages, and the results of this inquiry will be fully dealt with in a report which will be submitted later. As the findings in a case of this series are interesting and suggestive, especially to those dealing with the important subject of cholera in its various aspects, I have thought it desirable to publish the details of this case at the present stage in the interests of co-workers.

Considerable attention has been directed recently to the relationship of the B. typhosus to the biliary passages; and in my research on enteric fever in India[1] some years ago I dealt with this important question in relation to the carrier problem.

After being placed on special duty for cholera investigation in India I was interested to ascertain whether or not the relationship of the cholera vibrio to the bile had been studied. On referring to the recent monograph on Cholera in India, by Rogers, 1911,[2] I find it stated on p. 65: "The absence of infection of the gall-bladder and bile ducts by the comma bacillus places the disease in quite a different position from that of typhoid in this respect." Kulescha,[3] however, is stated by Kolle[4] to have found the cholera vibrio in the gall-bladder, and in 10 per cent. of the cases he found changes in the biliary passages.

During the recent Car Festival of Jagannath at Puri in July, 1912, to which an unusually large number of pilgrims came this year, an extensive epidemic of cholera occurred, and I had an opportunity of fully investigating this question of the relationship of the cholera vibrio to the biliary passages. I may mention that I have examined bacteriologically the bile in 271 cases of fatal cholera, and have found the cholera vibrio in 81 of these cases. The gall-bladder has shown pathological changes in 12 cases in which the vibrio was cultivated from the bile.

Before proceeding to give details of the case it may be convenient to briefly summarise its main features, clinical and pathological, and indicate their bearing on certain aspects of the cholera problem. The patient was attacked by cholera on August 17th, 1912, and his case was classed as severe, requiring intravenous injection of saline. He was given also permanganate by the mouth in order to destroy the cholera toxin in the intestine. He recovered from the acute attack, and passed urine freely, and the stools became formed. However, it was observed that his breathing was becoming deep and hurried, but otherwise there was no noteworthy symptom. He remained in this condition until August 26th, after which he went steadily downhill; the dyspnœa increased, delirium manifested itself, and finally he became unconscious. He died on the 30th. An examination after death showed that his gall-bladder was intensely inflamed, and bacteriological investigation showed that the bile contained a pure culture of the cholera vibrio. The pathological investigation revealed changes in the organs usually associated with toxic action, and it is interesting to note that in the consolidated areas in the lung organisms closely resembling the cholera vibrio were seen in smear preparations.

As to the bearing of these observations, in the first place they may be considered in regard to the clinical and therapeutic aspects of cholera. After the acute phase of the malady was got over the patient did not entirely recover, but lingered on for days, presenting symptoms of uræmia. The permanganate had destroyed, possibly, the toxin in his intestine, but an active centre of cholera virus remained untouched in the gall-bladder capable of developing the toxin, which can pass freely into the system, intoxicating the patient and finally causing his death.

Perhaps certain cases of that dreaded complication, uræmia, which causes one-fourth of the total deaths from cholera, can be explained by the continued presence in the gall-bladder of the vibrios and production of cholera toxin which will be passed continually into the system; and we must remember in this relation that, as I have shown, one-third of the cholera cases have such a focus in the gall-bladder. A physician in India remarked to me recently that he had been puzzled to account for the fact that in some of his cases of cholera the patients, after having got well over the collapse stage of the disease, succumbed considerably later to cardiac failure, although the most recent methods of treatment had been adopted from the very beginning of the attack. Possibly the continuance of the active focus of infection in the gall-bladder may explain some of these cases.

A problem of vital importance in the prevention of cholera is the elucidation of the carrier question, because it is the pivot on which turns, probably, the whole question of prevention. It may be of interest to emphasise one or two points in this relation. If, as has been held hitherto, the cholera vibrio in the human host inhabits only the intestine,[5] then its life after the acute attack of cholera is over might be expected to be short, because it is a delicate organism and would be unable to hold its own in the struggle with putrefactive and colon organisms. If, on the other hand, it could reach the gall-bladder, it would find ideal conditions for its growth—namely, the absence of other organisms and a most favourable medium for its development; indeed, Ottolenghi[6] has used bile recently as a selective medium for its "enrichment" in place of peptone water. It may live in the gall-bladder after a tolerance between the vibrio and the human host is established, for long periods, being excreted from time to time into the outer world, *viâ* the intestinal canal in the fæces. Zlatogoroff[7] has found the cholera vibrio in the stool of a person one year after recovery. Such individuals (carriers) harbouring the cholera vibrio, and travelling throughout the length and breadth of India and elsewhere, have unlimited opportunities for the production of cholera. Hence it will be apparent that, from the point of view of the eradication and prevention of cholera, the findings of this and other cases, which I have not recorded, are suggestive and important, and are deserving of serious consideration. This question I shall deal with fully later. This observation should stimulate workers to elaborate a method of destroying the cholera vibrio in the gall-bladder, whether by chemotherapy or by other means

The details of the investigation of the case are given below:—

Clinical notes.—Patient, male Hindu, aged 31 years, who resided in Puri, Orissa. Date of commencement of cholera attack, August 17th, 1912. He was admitted to the Cholera Hospital, Puri, in a collapsed condition on the 18th. The attack began with the usual symptoms, purging and vomiting. The stools were typical (rice water). Immediately on admission 4 pints of hypertonic saline were injected intravenously. Permanganate pills and drinks were administered by the mouth. Rectal injections of normal saline were given every two hours. He received barley water with lime juice freely.

August 19th: Pulse good, vomiting stopped, the colour of stools have changed to green. Only passed 2 or 3 oz. of urine. Cupped over the loins twice. One ampoule of pituitary extract given hypodermically. 20th: As the urine was not being passed freely he was given intravenously 2½ pints normal saline. 21st: Patient complains that he could not pass urine although he felt an inclination to do so. A catheter was passed and 24 oz. of urine were obtained. He passed one greenish-coloured formed stool. The breathing was a little hurried towards evening.

22nd: Had no motion to-day, passed urine freely, but breathing continued to be hurried. Calomel 5 gr., sodium bicarbonate 5 gr. were given at night. No physical signs of pneumonia. Hot fomentations applied to chest. Temperature in the evening was 99·4° F. 23rd: Passed only one semi-solid stool. Breathing is still hurried; patient is very restless. Urine passed freely. 24th: Passed one formed stool. Urine passed freely. Condition otherwise the same. 25th: Passed no stool to-day. Condition the same. 26th: Passed no stool to-day. Urine is free. Dyspnœa rather increased. Panopeptone 3i. was given every hour in addition to barley water.

27th: Passed no stool. Patient became a little delirious. Dyspnœa increased. Urine passed freely. 28th: Calomel 1 gr. every hour up to six hours. Râles were heard over both sides of the chest. No definite signs of consolidation. Urine passed freely. Semi-solid stools passed on the bed. Still delirious. 29th: Patient is unconscious; passes urine in bed. Dyspnœa increased. No movement of bowels. 30th: Condition the same as yesterday. Patient died at 2 P.M.

A post-mortem examination was made on August 31st at 8.30 A.M., the pathological and bacteriological notes being as follows:—

External appearance.—Body fairly well nourished.

Chest.—Some increase of fluid in the left pleural cavity, fluid was clear.

[1] Scientific Memoirs of Government of India, No. 32.

[2] Cholera and its Treatment, Leonard Rogers, 1911, Oxford Medical Publications.

[3] Russky Wratsch, 1909, No. 44 (quoted by Kolle, Handbuch der Pathogenen Mikroörganismen, 1911, Jena).

[4] Loc. cit.

[5] Manual of Bacteriology, Muir and Ritchie, 1910, p. 494.

[6] Centralblatt für Bakteriologie, Band 58, Heft 4, 1911.

[7] Ibid., Band 52, Heft 2, 1909.

Left lung.—Weight 1½ lb. The pleural surface of the lung is covered with a recent inflammatory exudation, yellow in colour; there are no adhesions between the visceral and parietal pleural surfaces. On section the lower lobe shows intense congestion with small patches of consolidation; these consolidated areas sink when they are placed in water, but the lung tissue between them floats. The upper lobe shows no noteworthy change. *Right lung.*—Weight 1½ lb. No fluid in pleural cavity. A slight amount of recent pleuritic exudation over lower lobe. On section the lower lobe is congested, but there are no areas of consolidation. Remainder of lung shows no noteworthy change.

Heart.—Weight ¾ lb. No increase of pericardial fluid; no exudation on pericardial surfaces. With the exception of a few patches of atheroma at commencement of aorta no noteworthy change.

Abdomen.—No increase of peritoneal fluid. *Liver.*—Weight 3¾ lb. On section liver pale and dry, otherwise no noteworthy change.

Gall-bladder.—On removing it after ligature of the duct some of the contents were drawn off with a sterile pipette, after searing an area of the surface, and planted on an agar slope; the result of this investigation will be discussed later. The organ appeared from the outside to be congested. On opening it a quantity of fluid as clear as water escaped, and in this fluid floated masses of yellowish, purulent-looking material. The wall of the gall-bladder was seen to be intensely congested. On section of the wall a red line of hæmorrhage could be seen under the mucosa.

Spleen.—Weight 8 oz. No noteworthy changes. *Right kidney.*—Weight 10 oz. Capsule strips easily, surface rather pale. On section the cortex is seen to be swollen and increased in size. It is pale grey in colour with red dots scattered over it; the pyramids are red in colour and contrast with the pale cortex. At one point in the cortex there is a very small cavity filled with pus. *Left kidney.*—Weight 9 oz. Capsule strips easily. Surface rather pale. On section the appearance is very similar to that met with in the right, but not so marked, and there is no pus found on section.

Stomach.—Shows some submucous hæmorrhages, especially towards the cardiac end. *Duodenum.*—Mucous membrane is distinctly congested, and there are some areas of hæmorrhage under the mucosa. *Jejunum.*—Filled with yellowish fluid. No noteworthy change. *Ileum.*—Filled with dark fluid contents. Some congestion of mucous membrane towards lower part. *Large intestine.*—Contains solid masses of fæces. The *cæcum* is intensely congested and shows points of superficial erosion. A similar condition is found in the *sigmoid*, but not so marked.

Bacteriological examination.—The agar slope on which the bile was inseminated showed a pure growth of cholera vibrio. The organisms gave a positive reaction with a high-titre (1 in 10,000) agglutinating serum obtained from the Swiss Serum and Vaccine Institute, Berne, prepared under the supervision of Professor Kolle, and also with a high-titre (1 in 8000) serum prepared by me by injecting a rabbit intravenously with increasing doses of a living agar culture of a strain of cholera vibrio obtained from a fatal case. The organisms in the bile had the usual cultural and microscopical characters of the comma bacillus. The cholera vibrio in the bile was thus authenticated by microscopic, cultural, and biological (serum sedimentation) tests.

Smears were made from the pus of the right kidney and from the consolidated patches in the left lung. They were fixed and stained. *The pus from the right kidney* showed only cocci. *The smears from the consolidated patches in the lung* showed a number of curved rods closely resembling the comma bacillus.

I have sectioned the gall-bladders of cholera cases in the bile of which the cholera vibrio was present, and in which the naked-eye changes in the wall were similar to those found in the present case. The results of the microscopic examination will be fully described by me later after further investigation, but I may state here that I found the mucous membrane in a necrotic condition, being cast off, with hæmorrhages and cellular exudation in the submucous. I have observed the comma bacillus in stained sections of the gall-bladder deep down in the submucosa, as well as on the surface.

Remarks.—This case of cholera presents several interesting and suggestive features. 1. After the acute phase the patient lived for 12 days, dying from uræmia. 2. The finding of the cholera vibrio in the bile and the pathological changes in the gall-bladder. 3. The presence of the comma bacillus in the consolidated area in the lung. 4. The pathological investigation indicated that the changes found in organs were the result of toxic action, the origin of this poison being probably the cholera vibrio growing in the bile. As the cholera vibrios die the intracellular toxin is liberated and passes into the system. 5. The appearance of the cæcum was striking. It resembled very closely the condition found in the large intestine of rabbits after subcutaneous or intravenous injection of Shiga bacilli.

From a consideration of the facts mentioned above it will be necessary to revise the present conception of the distribution of the cholera vibrio in the tissues of man, and this revision may help to clear up certain unexplained problems connected with cholera.

NOTE ON MAJOR LEONARD ROGERS'S METHOD OF TREATMENT OF ASIATIC CHOLERA.

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THE method of treating cholera by transfusion of hypertonic saline solution and by oral administration of permangates is so well known and so firmly established that it no longer requires any special advocacy. It is, however, desirable that those who have had an opportunity of testing the treatment should record their results, with a view to the formation of a definite opinion as to its value in the various forms and phases of the disease.

My personal experience of the treatment of cholera on any considerable scale relates to two periods. The first period was in 1905 and 1906, when, as resident physician of the Medical College Hospital, Calcutta, I saw the results of the methods of treatment then in vogue, including both subcutaneous and intravenous injection of normal saline. The second period was the one referred to in this note—viz., from March till November, 1911, when I was officiating for Major Rogers, and so had charge of the cholera ward of the Medical College Hospital. As it has been found that there is a remarkable uniformity in the average severity of the cases of cholera admitted to the Medical College Hospital, as shown by the yearly mortality, there was an exceptionally favourable opportunity of comparing the results obtained by the treatment adopted in these two periods.

During the nine months of 1911 Rogers's method of treatment was carried out as closely as possible, and as the assistant surgeons and nurses who were in immediate charge of the patients had been personally trained by Major Rogers, it was easy to secure a continuity of policy. There were changes in the medical staff during the period, but the freshly joined assistant surgeons had some previous knowledge of the technique of the treatment, and very quickly became proficient in carrying it out. It is to them and to the nurses that the results obtained are due; my share in the treatment consisted chiefly in supervising their work and in attempting to obtain a close adherence to the rules laid down by Major Rogers.

The notes on which the following figures are based were taken by the assistant surgeons in the form prescribed by Major Rogers, so that I would not be justified in making a detailed analysis of the cases, but will merely state the results and a few impressions of the method of treatment.

Total number of cases treated	112	Deaths ... 36	Mortality	32·1%
Total number of cases requiring transfusion ...	94	Deaths ... 34	Mortality in transfusion cases.....	37·2%

A bald statement of percentage mortality is of little value in helping us to estimate the value of a system of treatment of cholera. There are outbreaks in which the mortality may be 80 or 90 per cent., and others in which it may be only 30 or 40 per cent., apart from any special line of treatment; but, as previously mentioned, the mortality in the Calcutta Medical College Hospital had been found to remain fairly constant at about 60 per cent. over a series of years, so that a considerable reduction coincident with the new line of treatment is strongly suggestive of the method being an improvement on the older systems.

The question of diagnosis is of some importance In an epidemic there is seldom any doubt as to the nature of the cases, but in dealing with sporadic cases, such as are the rule in Calcutta, it frequently happens that even with the help of bacteriological examination there may be some doubt as to the diagnosis. In the present series the large percentage of cases requiring transfusion shows that the recovery rate is not unduly swollen by the inclusion of a large proportion of mild or doubtful cases; in fact, the only mild cases included in the figures are those in which the bacteriological finding was definite. On the other hand, in a few of the fatal cases the diagnosis of cholera was made even when no cholera bacilli were found; these were late cases in which the patient was admitted for some after-complication, but in which the history and symptoms pointed to the probability of the case being one of cholera.

It is clear, then, that the figures are not likely to be specially flattering to the treatment. It is, however, only fair to point out that since the opening of the new cholera ward in the Medical College Hospital there has been a vast improvement in the care and nursing of the patients, but, of course, this cannot account for anything but a small proportion of the increased recovery rate.

It is important to note that equally favourable results must not be expected in all types of the disease; for instance, in those epidemics where the great majority of the patients die in a few hours neither this nor any known line of treatment will save any large proportion of the patients. In such epidemics the treatment is likely to be unjustly condemned, or the medical man may be unduly discouraged by the poorness of the results obtained if he expects as great a reduction in the mortality as is obtained in a series of cases of average severity, such as is seen in the Medical College Hospital.

With regard to the details of the treatment, a complete account will be found in Major Rogers's book on Cholera, but one or two points may be noted. Early transfusion is the most important factor in the treatment. When the case is clearly one of cholera of any severity I think it is a mistake to wait for the blood pressure to fall and for the blood to become concentrated and highly charged with toxins. By prompt intravenous injection of hypertonic saline the toxins are kept from becoming concentrated, the circulation is maintained in the vital organs of the body, especially the heart and kidneys, and consequently serious damage to their tissues is considerably less likely to occur. Theoretically one might expect that the maintenance of the circulation would result in the absorption of a large amount of toxin from the bowel, but in practice it is found that any harm that may result from this is much more than counterbalanced by the other benefits resulting from transfusion. The rise of temperature following transfusion is probably due more to an equalisation of the body temperature by a restoration of the circulation, and to the restoration of the power of reaction to the toxins on the part of the body, than to the increased absorption of the toxins.

The administration of the permanganates has not yet been placed on a sound basis; pills and capsules are frequently unsatisfactory, and solutions are often resented by the patients. Washing out the stomach with a permanganate solution might be worth consideration in those cases where the patient would tolerate the procedure, and if it were found possible to retain a nasal tube *in situ* it might be practicable to eliminate a considerable amount of toxin by frequent lavage. The risk to the operator would have to be considered and guarded against.

Another possibility in the treatment of cholera to which certain American observers have called attention is the intravenous injection of alkalies to counteract the great diminution in the alkalinity of the blood that is known to occur. In some cases in which Major D. McCay kindly estimated the alkalinity of the blood for me the reduction was very great, but in these cases administration of alkalies by the vein was of little effect, probably because the treatment was too late.

The results stated above are by no means the best that are attainable, as some of the deaths were due to preventable causes such as errors and imperfections in the technique, but they are sufficiently good to show that the method is one of great value in saving life; while another advantage of the treatment that cannot be shown by figures is the remarkable relief of the suffering which is such a distressing feature of many cases of cholera.

I am indebted to Dr. Jitendra Nath. Ghosh, house physician, and to Dr. Sures Chandra Majumdar, assistant house physician of the cholera ward, for the notes on which the above figures are based.

LONDON (ROYAL FREE HOSPITAL) SCHOOL OF MEDICINE FOR WOMEN.—The annual dinner of the hospital and school will be held at the Trocadéro Restaurant, Piccadilly-circus, on Wednesday, Dec. 11th, at 7.15 P.M. Mr. Stanley Boyd will take the chair. Applications for dinner tickets, price 7*s.* 6*d.*, should be sent to the honorary secretaries, Dr. Winifred Cullis, 8, Hunter-street, Brunswick-square, W.C., or Dr. Frederick Langmead, 53, Queen Anne-street, W., not later than Nov. 30th.

ERYTHRÆMIA.

WITH AN ACCOUNT OF SIX CASES.

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THE six cases here described have been seen at the London Hospital during the last six years. The name *erythræmia* has rightly superseded the terms "splenomegalic polycythæmia" and "chronic polycythæmia with cyanosis." Several cases have been reported in which the spleen was not enlarged, and a few cases have shown no cyanosis. But the word "erythræmia" might well replace the word "polycythæmia" wherever the important and characteristic feature is an increase of *red* cells; leukæmia is indeed a condition of polycythæmia. When erythræmia persists, and no adequate cause for it is found, the term *primary erythræmia* may be used. If the erythræmia is secondary to congenital heart disease, chronic pulmonary disease, or other conditions known to produce an increase of the red cells, it may be called *secondary erythræmia*. Many authorities have restricted the term erythræmia to the cases here called primary erythræmia, and have used the word *erythrocytosis* for the conditions here called secondary erythræmia.

The disease is probably due to a primary hyperplasia of the bone marrow, involving chiefly the erythroblastic tissues. It is thus analogous to myeloid leukæmia, in which the leucoblastic tissues are concerned. The exciting cause of the disease is unknown; like many another disease it has been ascribed to gastro-intestinal toxæmia. Cases 3 and 6 gave a history of exposure to fumes. For a full account of the pathology of erythræmia Dr. F. Parkes Weber's [1] critical review may be consulted.

Symptoms.—The symptoms usually appear in adults between the ages of 30 and 60, and rather more frequently in men than in women. Shortness of breath, blueness, giddiness, and general weakness are among the earliest and most constant complaints. In some patients the first symptoms are referable to the spleen and consist of abdominal pains, usually on the left side. Others complain of the presence of an abdominal tumour. It is interesting to find that the change in facial appearance may not have been noticed by the patient. Wasting and general weakness are frequent, but only severe when the other symptoms are also troublesome. The subjects of erythræmia are very liable to hæmorrhages. Epistaxis, bleeding from the gums, and hæmatemesis have often been remarked. Purpura occurred in two of the cases here described.

Headache occurs at some time during the course of most cases. It often becomes continuous and produces a feeling of pressure or fulness whenever there is an exacerbation of the general symptoms. Typical attacks of migraine are sometimes a feature. The giddiness of erythræmia comes on in attacks of brief duration; tinnitus is rare. Paræsthesiæ, such as tingling or numbness, may be felt in the arms and legs or over the whole body. Muscular spasms, twitchings, and cramping pains may affect the extremities. Mental changes, such as nervousness, excitement, and loss of memory, sometimes appear. Graver cerebral symptoms suggest cerebral thrombosis or hæmorrhage—e.g., in Hutchison and Miller's [2] case. Temporary disturbances of vision are not infrequent.

It is unusual for cardio-vascular symptoms to predominate, but palpitation is common. Coldness of the extremities may be found, and a few patients have suffered severe neuralgic pains in them. Œdema of the legs is sometimes present, especially late in the disease. Thrombosis of vessels in any part of the body may give rise to local symptoms. Shortness of breath almost invariably forms one of the patient's complaints, yet the objective distress is often slight. Vomiting occurs in many cases, and is associated with anorexia, pain after food, and constipation. Severe attacks of sweating are described.

Physical signs.—The face usually presents a striking florid appearance, with dilatation of the superficial venules. This full-blooded aspect is more characteristic than cyanosis. Cyanosis is, however, almost always present, being well seen

[1] F. P. Weber: Quarterly Journal of Medicine, 1908, vol. ii., p. 85.
[2] Hutchison and Miller: THE LANCET, 1906, vol. i., p. 744.

in the lips and ears. The whole face may be extremely cyanosed in severe cases and on exposure to cold. The congestion gradually fades towards the neck, and the trunk is rarely affected. The hands and forearms are congested, the colour ranging from red to bluish-red. The feet may be similarly involved. Clubbing of the fingers is sometimes found. The eyes are bloodshot, the retinal vessels congested. The tongue is bluish-red; the palate and pharynx are deeply injected. The above appearances are not diagnostic as some have implied; the erythræmia secondary to chronic cardiac or pulmonary disease can produce them all. Pigmentation of the skin is occasionally present. There is no enlargement of the lymphatic glands.

Examination of the cardio-vascular system reveals slighter changes than might be expected. The arteries are slightly thickened, and later in the disease they may be hard and tortuous. The rate of the pulse is somewhat increased. The blood pressure is usually normal or moderately raised. A number of cases have been described by Geisböck and others in which the pressure was very high, but these are rare and do not form a suitable basis for classification. The renal condition may explain the high blood pressure in some cases. The left ventricle generally shows some degree of hypertrophy.

In the great majority of cases the spleen is enlarged. It is firm and not tender. The lower edge frequently extends to the level of the umbilicus, rarely lower. Perisplenitis may produce tenderness on palpation, and repeated attacks can alter the characters of the splenic tumour. The size of the spleen may vary greatly during the course of the disease. The liver is generally enlarged, in most cases to a moderate degree. Ascites is absent except as a terminal event.

The rate of respiration is raised, and varies from 20–30 per minute. The lungs show no abnormal signs. In a small proportion of cases the knee-jerks are absent, but no other abnormalities are found in the nervous system beyond the mental changes above mentioned. Albumin is generally found in the urine, sometimes in considerable or increasing amount.

The temperature was subnormal in each of the six cases here described, a sign which does not appear to have been recorded in previous cases.

The blood shows a great increase in the number of red cells, even to 13,000,000 per c.mm. The number usually ranges from 7,000,000 to 12,000,000 per c.mm., and may vary considerably from time to time in the same individual. The corpuscles are normal in appearance. The presence of normoblasts has been reported by Osler.[3] The hæmoglobin is seldom increased in proportion to the number of erythrocytes, hence the colour index is low. A fair degree of leucocytosis (10,000–30,000 per c.mm.) is the rule, and the polymorphonuclears are relatively increased. Viscosity is raised in proportion to the number of cells; coagulability varies in different cases. The total volume of blood is increased; it may measure two or three times the normal. The total oxygen-capacity of the blood is also greatly augmented. (See Cases 3, 4, and 5.)

Diagnosis.—The diagnosis is made from the presence of an excess of red cells in the blood and the absence of other recognised causes for it. Erythræmia, cyanosis, and enlarged spleen are the three main features of the disease. It is said that venous stasis in thrombosis of the portal and splenic veins can produce both erythræmia and splenomegaly; such cases would be difficult to diagnose from primary erythræmia during life. The presence of albuminuria has led to a diagnosis of chronic nephritis. The cerebral and mental symptoms may suggest neurasthenia or even cerebral tumour.

It should be remembered that the normal number of red cells in a healthy adult male is 6,000,000 per c.mm., rather than 5,000,000, as generally stated. The erythræmia secondary to cardiac or pulmonary disease may be as extreme as that of primary erythræmia. A case of congenital heart disease recently in this hospital had 12,500,000 red cells per c.mm. A case of chronic bronchitis and emphysema had 8,500,000 per c.mm., and the spleen was readily palpable.

Prognosis.—Patients affected with primary erythræmia may continue in fair comfort for several years after the disease has become manifest. But the symptoms tend to recur with greater severity, and cure is unknown. Death may occur with symptoms and signs of heart failure, and an exacerbation of the cyanosis. In a few cases cerebral hæmorrhage or thrombosis has been the cause of death. The condition of the kidneys may, perhaps, contribute to a fatal termination.

Treatment.—As most cases are treated in bed for a time, the beneficial effects of rest should not be ignored when the effect of other remedies is considered. Venesection provides the most certain means of relieving symptoms; in some cases the relief has seemed more than temporary. Dr. Robert Hutchison advises the removal of 30–40 ounces of blood at a time, and this should be repeated as necessary during the course of the disease. Relief may thus be obtained in cases where the blood pressure is not raised. The application of X rays to the bones over long periods has been followed by improvement in some cases. Splenectomy is dangerous. The inhalation of oxygen did not benefit the cases described below.

CASE 1.—The patient, a cook, aged 47, was admitted to the London Hospital on May 13th, 1911, under the care of Dr. Wilfred Hadley, on account of pain in the abdomen.

History.—For 15 months the patient had lost weight and strength. During this time he had been subject to colds and had experienced occasional attacks of giddiness. For five months he had also suffered from attacks of breathlessness, especially at night, so that he felt compelled to rise and stand at the window to get breath. During this time he had a dry cough. Three months before admission a griping pain in the abdomen came on suddenly while he was at work. Since that time abdominal pain had been present during the greater part of each day. It occurred either as a sharp epigastric pain immediately after food, or, at times, quite independent of food. The pain often radiated to the left side and it might be produced by lying upon that side. The appetite had been good throughout. For three months the legs and thighs had been swollen after the day's work. For the same time he had experienced frequency of micturition, hourly during the day, two or three times during the night. He had slept badly for some time. The patient remained at work until a week before admission, when he ceased owing to the severity of abdominal pain.

Previous health.—For several years he had suffered, especially in the ankles, from what he called "rheumatic gout." The last attack was 15 months before admission, and the patient noticed the onset of the weakness and wasting soon after it. Apart from this joint trouble and occasional headaches and "bilious attacks," the previous health had been good. Until a few months before admission he had taken 12 pints of porter a day and spirits occasionally. He was accustomed to smoke 5 ounces of tobacco a week. There was no history of syphilis or gonorrhœa. He had never been abroad. The family history showed nothing important.

On admission.—The skin was dark and of a brown colour, especially over the abdomen. The nipples were deeply pigmented. There was no pigmentation of the buccal mucous membrane. The face, and to a less extent the rest of the body, had a congested appearance, with some degree of cyanosis. Yet the "full-blooded" appearance was not so distinctive that it at once allowed a diagnosis of erythræmia. The body was wasted and slight œdema of the ankles was present. The teeth were dirty and carious. The axillary and inguinal glands were just palpable.

The abdomen was prominent, especially in the lower half. The lower edge of the liver almost reached the umbilical plane; the anterior surface of the liver was smooth and the edge sharp. The whole of the left side of the abdomen was tender on palpation. The spleen was enlarged, hard, and tender. It extended downwards one inch below the costal margin in the nipple line, but almost to the anterior superior iliac spine in the left *flank*. Dulness to percussion was obtained over a corresponding area; the right flank was resonant. The apex beat of the heart was in the fifth intercostal space one inch external to the nipple line and 4½ in. external to the mid-line. The impulse was not forcible, and the area of cardiac dulness was increased only to the left. The heart sounds were normal and no murmurs were heard. The pulse was regular; the radial artery felt thick. Pulsation was noticeable in the carotid and brachial arteries. The systolic brachial blood pressure was 130 mm. Hg, measured by the Riva-Rocci method, as in all these cases. On examination of the lungs, tenderness was elicited by percussion on the left side. The breath sounds were faint at both bases and also in the left axilla, where a pleural rub was heard. There were no other adventitious sounds. No abnormal signs were found on examination of the nervous system except that the knee-jerks were obtained with difficulty. The urine was acid and of specific gravity 1015. Albumin was present; sugar was absent. A test meal given on May 20th showed free HCl, 0·09 per cent.; total acidity, 51.

The *blood* was examined on May 18th and showed: Erythrocytes, 10,900,000 per c.mm.; hæmoglobin, 130 per cent.; colour index, 0·6; leucocytes, 27,400 per c.mm. *Differential count:* Polynuclear neutrophils, 85 per cent.; polynuclear eosinophils, 4·5 per cent.; small lymphocytes, 6 per cent.; large lymphocytes, 3·5 per cent.; large hyaline cells, 1·5 per cent. The Wassermann reaction in the blood was negative.

Course.—The temperature, which was 101·5° F. on admission, fell to 98° on the following day. Except for several temporary rises to 99° or 101°, it then remained subnormal until death. The rate of the pulse was 90–100 per minute. The general condition did not improve. The abdomen became more tympanitic and the pain more severe, though it varied from day to day. The feeling of breathlessness continued; the respirations averaged 30 per minute. Headache was constant and often severe. The daily amount of urine averaged 50 oz.; in contained albumin, eventually a considerable amount. On July 7th signs of ascites were detected; 50 oz. of fluid were withdrawn, the deposit from which contained blood and epithelial cells. Ascites persisted from this time until he died. Further blood counts are given below.

At the beginning of July the general condition had become rather worse and the right leg showed considerable œdema. The patient began to complain of pain and difficulty on micturition. On local examination the tip of the glans penis was found to be gangrenous, and

[3] Osler: THE LANCET, 1908, vol. i., p. 143.

showed a line of demarcation one-third of an inch from the meatus. The necrotic portion gradually separated, leaving a scar. During July the patient also suffered greatly from the pain in the left side of the abdomen. The headache became intense, and the cough troubled him greatly. On August 4th, 1911, he died. The results of the necropsy will be published later.

Effects of treatment.—May 18th, 1911: Erythrocytes, 10,900,000. May 22nd–27th: Liq. arsenicalis, m iii. t.d.s. May 29th: Erythrocytes, 9,400,000. May 29th–June 6th: Oxygen, 30 min. bis die. June 6th: Erythrocytes, 10,600,000. June 10th: Venesection, 20 oz. June 14th: Liq. arsenicalis, m iii. t.d.s. June 19th: Erythrocytes, 9,112,500. June 20th: Liq. arsenicalis, m 5 t.d.s. June 26th: Liq. arsenicalis, m 7 t.d.s. June 28th: Erythrocytes, 7,000,000. June 30th: Venesection, 20 oz. July 4th: Erythrocytes, 8,610,000.

1. *Venesection.*—After the venesection (20 oz.) on June 10th the patient felt better, and his breathing seemed easier for a few days. After the venesection (20 oz.) on June 30th the improvement was slight and even more temporary.

2. *Oxygen.*—Hill's[4] oxygen mask, a light concave plate of celluloid with silk sides loosely enveloping the face, was used. Oxygen was given for 30 minutes morning and evening during one week. The cyanosis diminished almost as soon as the mask was applied, the colour becoming much brighter. The cyanosis returned two or three minutes after removal of the mask. The patient experienced no relief from the oxygen inhalation. During the last two or three days of the week of oxygen treatment he felt short of breath and a sense of pressure across the chest, with slight nausea. These symptoms were said to be worse about half an hour after each inhalation had been stopped.

3. *Arsenic.*—The administration of arsenic, as that of oxygen, seemed to have no influence on the downward progress of the disease. Though the two blood counts recorded during the course of arsenic (June 14th–August 4th, death) were lower than the previous counts, yet the patient's symptoms and general appearance became steadily worse during the same time.

Summary (Case 1).—Under observation three months Florid appearance with cyanosis. Brown pigmentation of the skin. Spleen irregularly enlarged. Heart enlarged to the left. Arteries thickened. Blood pressure 130 mm. Hg. Erythrocytes 10,900,000 per c.mm. Albuminuria. Gangrene of tip of penis. Terminal ascites. Death 18 months from onset of symptoms.

CASE 2.—The patient, a wharf labourer, aged 26, was admitted to the London Hospital on July 12th, 1911, under the care of Dr. Wilfred Hadley, on account of pain in the abdomen.

History.—For four or five months he had felt pain in the abdomen on lifting. During that time he had suffered from anorexia, constipation, and slight pain after food; there had been no vomiting. For three weeks he had been unable to work owing to the severity of the abdominal pain, which affected especially the left side. He had lost about a stone in weight, and had become much weaker during the few weeks before admission. He had sometimes noticed "sparks in the sight," even sufficient to interfere temporarily with vision. There had been no headache, no palpitation, and no shortness of breath. The patient said that his face had always been red; he had not noticed any change in his appearance.

Previous health.—Four and a half years before admission he had a single hæmatemesis with melæna, following one of the drinking bouts in which he frequently indulged at that time. For two or three years his teeth had been giving him trouble especially by causing "abscesses" on both sides of the upper and lower jaws. Ten months before admission six carious stumps and several other carious teeth were extracted, leaving only four teeth in the mouth. Artificial dentures had since been provided. Apart from the single hæmatemesis and the dental caries his health had always been good. There was no history of venereal disease. The family history revealed nothing of importance.

On admission.—The face was of a deep red colour and showed dilated venules on the cheeks. The lips were bluish-red. The conjunctivæ and the mucous membrane of the mouth and pharynx were deep red. The forearms were congested. The superficial lymphatic glands were not enlarged. The weight was 8 st. 3 lb. The spleen was easily felt extending downwards a little below the umbilical plane. It was hard and not tender. The liver was enlarged to percussion and almost reached the umbilical plane. The edge was not readily felt on account of slight abdominal rigidity. There was impairment of the percussion note in the fourth right intercostal space in the nipple line. There were no signs of ascites. The apex beat of the heart was in the fifth intercostal space in the nipple line. The area of cardiac dulness extended to the nipple line on the left, a finger's breadth to the right of the sternum on the right, and to the third rib above. The heart sounds were normal, except that the second sound at the base was duplicated, though it was not louder than usual. No murmurs were heard. The pulse was regular and of frequency 96. The artery was just palpable and not tortuous. The blood pressure was 135 mm. Hg. The respirations were 26 per minute. No abnormal physical signs were found in the lungs or nervous system. The urine contained albumin.

The *blood report* on July 15th showed: Erythrocytes, 12,200,000 per c.mm.; hæmoglobin, 130 + per cent.; colour index, 0·6 (approximately); leucocytes, 10,440 per c.mm. *Differential count* (200 cells): Polynuclear neutrophils, 75 per cent.; polynuclear eosinophils, 2·5 per cent.; small lymphocytes, 17 per cent.; large lymphocytes, 4·5 per cent.; large hyaline cells, 2·5 per cent.; coarsely granular basophils, 0·5 per cent. Rouleaux formation normal. The results of further blood counts are given below.

Course.—The temperature remained subnormal (96·4°–98·4° F.) except on five occasions when it reached 99°. The pulse-rate varied between 70 and 110 per minute. The respirations averaged 24 per minute. There was never any objective shortness of breath. The florid appearance did not vary to any great extent. It was, perhaps, more evident in the latter half of August than on admission. The daily amount of urine averaged 40 oz. The amount of albumin deposited after boiling was about 1/20th (i.e., 1/20th of the volume of urine boiled). A few casts and pus cells were present.

[4] L. Hill: Brit. Med. Jour., 1912, vol. i., p. 71.

The appetite notably improved, and the patient felt better "in himself" than on admission. Occasional headaches were complained of during August. The pain in the side improved for a time, but on August 9th he had a sharp attack of pain in the left hypochondrium, with tenderness on light palpation in this region. Some general abdominal pain was also present. The condition was considered to be perisplenitis. Further attacks, less severe, occurred especially when the patient was allowed to get out of bed. Before his discharge these recurring attacks of pain had ceased, and he could walk with impunity. On discharge, Sept. 25th, 1911, the erythrocytes numbered 11,250,000, the blood pressure was 115–120 mm. Hg, and the florid appearance was much the same as on admission.

On July 6th, 1912, he came to hospital by request in order that he might be examined again. Since his discharge in September, 1911, he had not missed an hour's work. He had recently felt slight gnawing pains in the epigastrium about an hour after meals and had been inclined to constipation. A few days before, he had suffered from a slight "bilious attack" which terminated in vomiting. On several occasions he had felt giddy and had experienced a numb sensation all over the body. There had been no return of the pain in the left side.

On examination he presented an appearance very similar to that on his discharge in September, 1911. The face was red; there was scarcely a trace of cyanosis except in the colour of the lips. The pulse was 82 and regular, the artery just palpable. The blood pressure was 125 mm. Hg. The red cells numbered 10,487,000 per c.mm. The apex beat of the heart was in the fifth intercostal space within the nipple line. The area of cardiac dulness was not enlarged. The pulmonary second sound was duplicated, the aortic second accentuated. There were no murmurs. The spleen could only be felt when the patient took a deep inspiration. It was very hard and not tender. The liver was much enlarged, the lower edge being felt in the umbilical plane. It was firm but not hard. There was no ascites. Both kidneys were palpable; the left appeared to be enlarged. The knee-jerks were readily obtained. The urine was acid and albuminous. The amount of albumin deposited after boiling was one-third. A few granular casts were seen in the centrifuged deposit from the urine.

On *Oct. 23rd, 1912*, he was sent to hospital by his private doctor. Ten days before, and during the five days before admission, he had experienced severe general abdominal pain of a cutting character and accompanied by vomiting. On admission his general appearance was the same as before. His face was red, but not more cyanosed than on previous admissions. He complained of severe abdominal pain, but did not appear to be dangerously ill. The pulse was 80 and regular; the respirations were 28 per minute. The heart showed the same signs as before. Symptoms of heart failure, such as œdema and dyspnœa, were absent. The abdomen was prominent and there was dulness in the flanks. The spleen was not palpable. The liver extended four fingers' breadth below the right costal margin. A few hours later 6 oz. of blood were passed per rectum. The abdominal pain became worse and was accompanied by nausea. During the night it was found that the pulse had become scarcely perceptible at the wrist. The rate of the heart on auscultation was upwards of 150 per minute. There were no *symptoms* of heart failure. He quickly became unconscious and died 15 minutes later, ten hours after admission. The results of the necropsy will be published later.

Effects of treatment.—July 15th, 1911: Erythrocytes, 12,200,000 per c.mm. July 17th: Venesection, 20 oz. July 19th: Erythrocytes, 12,400,000 per c.mm. July 22nd–29th: Oxygen, 30 min. bis die. July 31st: Erythrocytes, 10,500,000 per c.mm. August 9th: Erythrocytes, 9,900,000 per c.mm. Sept. 11th: Erythrocytes, 11,250,000 per c.mm.

1. *Venesection.*—For two or three days after venesection (20 oz.) on July 17th the patient felt relieved and said that he was able to rest better. No change was shown in the blood count of July 19th (q.v.).

2. *Oxygen.*—Oxygen was inhaled through a Hill's mask for half an hour morning and evening during one week (July 22nd–29th).

(*a*) *Immediate effect.*—Almost as soon as the oxygen mask was applied the respirations became very deep. The rate of respiration was 24 per minute before and throughout the administration. The rate of the pulse was reduced during the inhalation—e.g., in three experiments 108 became 98, 108 became 100, 88 became 84. The colour of the patient always became a much brighter red after two or three minutes of oxygen. He experienced no subjective sensations during the inhalation. In one experiment the blood pressure was taken before and after 30 minutes of oxygen. It was 115 mm. Hg and remained unaltered.

(*b*) *Remote effect.*—It will be seen by a reference to the above summary that the number of erythrocytes fell by about 2,000,000. during the week of oxygen inhalation. But it cannot be assumed that this was an effect of the oxygen A further fall took place in the ten days which followed. The patient did not seem or feel any better in his general condition. The only change noticed by him was an improvement in his appetite, especially for his dinner, which followed the morning inhalation.

Summary (Case 2).—Under observation one year. Florid appearance with cyanosis. Spleen greatly enlarged, later not palpable. Blood pressure 115–135 mm. Hg. Erythrocytes 12,200,000 per c.mm. Severe albuminuria, increasing in amount. Attacks of perisplenitis. Death 1½ years after onset of symptoms.

CASE 3.—The patient, a man aged 57, first came under the care of Dr. Theodore Thompson at the out-patient department of the London Hospital on March 4th, 1908. He complained of pain in the abdomen and of giddiness.

History.—The patient had been engaged for 18 years in a capacity that caused him to come frequently in contact with gas and fumes. He left in 1904, when many workmen were discharged, and had since done other kinds of work. No symptoms appeared while the patient was employed at his former work. Several months later (1905) he began to suffer from attacks of giddiness, which lasted two or three minutes and recurred two or three times a day. There were intervals of a week's freedom from these attacks. Headache began about the same time; it was continuous in character and vertical or occipital in position. He then noticed that he was becoming "blue." This was noticed first at the margins of the ears and later in the rest of the face.

In 1907 he began to experience occasional pains in the left side of the abdomen, and suspected that he had a lump there. On Dec. 31st, 1907,

two months before coming to the hospital, he was compelled to give up work owing to severe abdominal pain. This was general and had no relation to food. The attacks of giddiness had also become more troublesome and occurred while he was at work on the scaffolding. On inquiry the patient stated that for the last few years he had been somewhat short of breath on exertion.

Previous health.—In 1870 he contracted syphilis and was treated for six months. Four years later appeared a gumma of manubrium sterni, the scar of which is still present. For 30 years the patient had passed a catheter every fortnight on account of a stricture at the external orifice of the urethra. Constipation had always been troublesome. He had never been abroad. He had rarely taken more than two pints of beer a day and never spirits. The family history revealed nothing important.

On examination (March, 1908).—He presented an appearance of extreme "red-purple" cyanosis. The spleen was felt extending two inches below the left costal margin. The heart was not enlarged to percussion, there was no thickening of the vessels, and the blood pressure was 130 mm. Hg. The urine contained a trace of albumin. Examination of the blood showed the number of erythrocytes to be 12,000,000 per c.mm.

Course.—In *April, 1908*, the patient was admitted to the hospital because the face and abdomen were swollen and the abdominal pain was severe. Venesection was performed several times and a month's course of mercury and iodides was given. He returned to the out-patient department where a course of oxygen inhalations was tried.

In *July, 1908*, Dr. A. E. Boycott kindly made special observations and found that the total amount of blood in this patient was two and a half times, and the total oxygen-capacity was three times the normal. (Haldane and Lorrain Smith's method.) The red cells numbered 12,000,000 per c.mm. at this time; in September, 1908, 12,500,000.

From September, 1908, to May, 1909, X rays were applied to the tibiæ, sternum, and spleen, for ten minutes each every few days. The general condition improved during this time, but in *December, 1908*, he was readmitted to hospital for two months because of pain in the left side and trembling of the hands and feet. Two blood counts showed 7,600,000 and 8,000,000 erythrocytes per c.mm. The spleen was the same size as before.

In *April, 1909*, examination showed no signs of cardiac hypertrophy. The area of cardiac dulness, the first heart sound at the apex, and the aortic second sound were all normal. The spleen seemed somewhat smaller. A *blood examination* showed: Erythrocytes, 12,000,000 per c.mm.; hæmoglobin, 140 per cent.; colour index, 0·5; leucocytes, 11,800 per c.mm. *Differential count:* Polynuclear neutrophils, 94·5 per cent.; polynuclear eosinophils, 0·5 per cent.; small lymphocytes, 3·0 per cent.; large lymphocytes, 1·0 per cent.; large hyaline cells, 1·0 per cent.

In *May, 1910*, he was again admitted to the hospital. Some erythema and purpuric spots had appeared in the skin on several occasions. At one time the right foot became cold and the patient complained of a "woolly" feeling in it. He had previously mentioned tingling sensations in the left arm, hand, and fingers. The erythrocytes then numbered 9,500,000 per c.mm., and the hæmoglobin was approximately 130 per cent. The spleen was enlarged as before; it was hard and not tender. The liver was not palpable. The heart showed no abnormal signs. The pulse-rate varied from 70 to 100 per minute. The radial arteries were not thicker than those usually felt in a man of 59. The temperature was subnormal (97° F.). The average rate of respiration was 24 per minute. The urine was at that time free from albumin. The weight was 8 st. 7 lb.

In *February, 1911*, and in *May, 1911*, the erythrocytes numbered 10,500,000 per c.mm. and the hæmoglobin was 130 per cent. During the intervening period purpura recurred.

In *October, 1911*, the spleen had become larger and could easily be seen moving on respiration. It extended downwards exactly to the umbilical plane and inwards to three inches from the mid-line. The edge of the liver was just palpable, but it was not hard. The radial artery had become moderately thickened and tortuous. The apex beat of the heart was still in the nipple line in the fifth space. It had not the forcible character of a hypertrophied heart. The blood pressure taken on four occasions was 118–128 mm.Hg. The general appearance of the patient was the same as before. He had done no work since he first came under observation, but had no serious disabilities so long as he abstained from work.

In *March, 1912*, there was some œdema of the left leg which rapidly subsided by rest.

In *June, 1912*, the erythrocytes numbered 7,300,000 per c.mm., the hæmoglobin was 120 per cent., and the colour index 0·7. The bluish-red congested appearance of the face and hands continued the same. The skin of the rest of the body was not in the least flushed and there was no œdema. The fingers were not clubbed. The condition of the spleen, liver, heart, and vessels was the same as in October, 1911. The blood pressure measured 120 mm. Hg. The urine contained a trace of albumin but no casts. An X ray examination showed nothing abnormal in the chest, unless slight enlargement of the heart to the left. The weight was 9 st. 7 lb.

Effects of treatment.—(1) *Venesection.*—In April, 1908, he was venesected several times with temporary relief. The general condition remained unaltered.

(2) *Oxygen.*—(*a*) *Immediate effect.*—Pure oxygen was administered through an ordinary nitrous oxide inhaler. The colour seemed a little brighter during the administration. There were no subjective sensations. The respiration did not change either in rate or character. The rate of the pulse was reduced by several beats per minute. On two occasions the blood pressure was taken before and after 30 minutes' oxygen. In one case it was 120 mm., in the other 128 mm. Hg before the inhalation; in both cases it remained unaltered.

(*b*) *Remote effect.*—In June, 1908, Professor Leonard Hill instituted a three months' course of pure oxygen inhalations. Oxygen was administered directly from a cylinder through a mask with inlet and outlet valves, as fitted to the Siemens-Gorman diving helmet. It was given for one and a quarter hours on five days a week during six weeks, and then three times a week during the rest of the three months. Repeated estimations of erythrocytes were made. Professor Hill was satisfied that there was no effect on the general condition or on the number of erythrocytes. The patient experienced no subjective sensations from the treatment.

(3) *X rays.*—From September, 1908, to May, 1909, a period of nine months, X rays were applied to the tibiæ, sternum, and spleen for ten minutes each, daily for three weeks, later once or twice weekly. The spleen became somewhat smaller. The general condition certainly improved, although he was readmitted during this time on account of perisplenitis. Before X ray treatment was begun the erythrocytes numbered 12,500,000 per c.mm. Although after three months the numbers had fallen to 7,600,000 and 8,000,000 per c.mm., yet at the end of the nine months' course the erythrocytes had again reached 12,000,000 per c.mm.

Summary (Case 3).—Under observation four years. History of continued exposure to gas. Extremely florid and cyanosed. Spleen enlarged. Arteries became thickened. Blood pressure 120 mm. Hg. Erythrocytes 12,000,000 per c.mm. Albuminuria. General condition remains good.

CASE 4.—The patient, a man aged 38, was admitted to the London Hospital on Dec. 27th, 1907, under the care of Dr. Robert Hutchison. He complained of pains in the chest and legs, and of shortness of breath.

History.—In January, 1907, he began to suffer from cramping pains in the legs. On Jan. 22nd he was seen in the out-patient department. The face was congested. The urine contained a trace of albumin. The spleen was not palpable. The patient ceased to attend after two weeks because the pains had disappeared. In October, 1907, they returned, and he began to suffer from shortness of breath and slight pain in the chest. Vomiting occurred on several occasions immediately after meals. He did not complain of "blueness," or of palpitation.

Previous health.—For many years the patient had been subject to bleeding from the gums, and had often found blood on the pillow on waking. Until a year before admission he had been otherwise quite well. He was a Pole, and had lived in England for 11 years. He rarely took beer or spirits and did not smoke. There was no history of syphilis.

On admission.—There was redness, with slight cyanosis, of the face, lips, mucous membranes, and of the fingers and toes. There was no objective dyspnœa. The fingers were not clubbed. The teeth and gums were very dirty. The weight was 9 st. 9 lb. The apex beat of the heart was in the fifth space in the mid-clavicular line. The area of cardiac dulness was not enlarged. The second sound at the aortic area was loud, but the other heart sounds were normal, and no murmurs were heard. The blood pressure was 124 mm. Hg. The abdomen was slightly prominent. The spleen was easily palpable, but not greatly enlarged; the edge was firm and not tender. The lower edge of the liver extended one inch below the right costal margin. The lungs showed no abnormal physical signs. The knee-jerks were obtained with difficulty. The retinal veins were seen to be greatly distended.

A *blood examination* showed: Erythrocytes, 10,500,000 per c.mm.; hæmoglobin, 180 per cent.; leucocytes, 15,300 per c.mm. *Differential count* (800 leucocytes): Polynuclear neutrophils, 81·25 per cent.; small lymphocytes, 12·5 per cent.; large lymphocytes, 2·5 per cent.; eosinophils, 3·75 per cent. Coagulation time (Wright's tubes): 6–8 minutes. Viscosity: 16 times that of water.

Special investigations kindly made by Dr. A. E. Boycott [5] showed: *Total oxygen capacity:* Feb. 1st, 1908, 1620 c.c.; Feb. 15th, 1480 c.c.; Normal, about 500 c.c. *Total blood volume:* Feb. 1st, 4970 c.c.; Feb. 15th, 4765 c.c.; normal, about 3000 c.c.

During the month's stay in hospital the temperature was subnormal (97°–98°), the pulse-rate averaged 76, the respirations 22 per minute. The daily amount of urine was about 60 ounces. A trace of albumin was present.

Course.—The slight general improvement which occurred in hospital was maintained throughout 1908. In *April, 1909*, he began to experience difficulty and pain in micturition. The pains in the legs returned. General weakness, and especially weakness of the legs, increased, so that he could scarcely stand. The "blueness" seemed to him to be worse; the feet and legs often felt very cold. At times objects seemed blurred before his eyes.

In *May, 1909*, he was readmitted to hospital on account of these symptoms. The cyanosis was much as before; there was general fulness of the veins, especially of those of the legs. The physical signs in the heart, lungs, and abdomen were the same as in December, 1907. The blood pressure was 120 mm. Hg. The knee-jerks were not obtained. The urine contained albumin, 1/10th. There was a considerable amount of deposit which contained pus cells and a few red cells; no casts were seen. A *blood examination* showed: Erythrocytes, 10,712,000 per c.mm.; hæmoglobin, 130 per cent. (approx.); colour index, 0·6. During the stay in hospital the temperature, pulse-rate, respiration-rate, and amount of urine were much the same as at the first admission. The patient was venesected to two pints on May 21st, and to 24 ounces on May 27th. His symptoms were greatly relieved, and he returned to work on June 9th, 1909.

In *May, 1910*, he came to hospital "to have some more blood drawn off," and was readmitted. Weakness of the legs and general weakness were the chief complaints. He also complained of frontal headaches. He still suffered from shortness of breath on exertion. Thirst was excessive, and there was nocturnal frequency, but no longer any pain on micturition. On examination the face was cyanosed, and the extremities congested as before. The body was well nourished and weighed 9st. 3lb. The temperature was 97°–98°. The teeth were dirty, and the gums tended to bleed. The lymphatic glands were not enlarged. The heart showed the same physical signs as before; the aortic second sound was accentuated. The blood pressure was 122 mm. Hg. The pulse was regular and of frequency 72; the radial artery was thick and tortuous. The spleen was larger and harder than on previous admissions. It extended downwards three fingers' breadth below the left costal margin, and was moveable laterally. The lower edge of the liver was firm and extended two fingers' breadth below the right costal margin. There was no ascites. The knee-jerks were not obtained. The urine still contained albumin. The erythrocytes numbered 10,400,000 per c.mm. A venesection to 30 ounces was performed; the spleen could barely be felt after the venesection. He was greatly relieved and left the hospital two days later.

In *August, 1912*, he was requested to come to the hospital for further examination. He stated that he had not missed a day's work since his discharge from hospital in May, 1910. He felt certain that his face was

[5] A. E. Boycott: These results have been quoted by F. Parkes Weber, loc. cit., p. 97.

not nearly so red as at that time, nor were his lips and ears so blue. There had been slight giddiness at times and occasional blurring before the eyes. He had not suffered from shortness of breath, headache, palpitation, or abdominal pain. The frequency of micturition, present since he first came under observation, was two-hourly during the day and two or three times during the night.

On examination his face was red, his lips were bluish-red, and his ears slightly blue. The mucous membrane of the mouth was injected and the eyes were bloodshot. The retinal vessels were numerous, but the appearance of the fundus was not striking. The hands were congested and bluish; there was no clubbing of the fingers. The superficial veins of the arms were numerous and prominent. The veins of the leg were rather prominent but not varicose. The toes were somewhat congested. The skin of the trunk was free from congestion except near the upper end of the sternum. There was no pigmentation of the skin and no œdema. The superficial lymphatic glands were not enlarged. The pulse was regular; the radial arteries were moderately thickened and very tortuous. The blood pressure was 130 mm. Hg. No abnormal physical signs were found in the heart beyond an accentuation of the aortic second sound. The apex beat could not be felt. Radiographic examination of the heart, however, showed slight enlargement of the heart to the left. The lungs were healthy. On examining the abdomen a slight prominence was seen in the splenic region. The spleen was enlarged and very hard. It extended four fingers' breadth below the left costal margin. The liver was firm but not so hard as the spleen. Its lower edge was felt two fingers' breadth below the right costal margin. There was no ascites. The pupils were equal and reacted briskly to light. The knee-jerks could not be obtained. The blood contained 9,975,000 erythrocytes per c.mm. The Wassermann reaction was negative in the serum. The urine was acid and contained one-third albumin. It was cloudy, and pus cells were very abundant in the centrifuged deposit. No casts were seen, nor any red cells. Large numbers of long-chained streptococci were present, but no tubercle bacilli could be discovered.

Effects of treatment.—Venesection. The venesections (40 oz. and 24 oz.) in May, 1909, gave relief to the patient's symptoms. In May, 1910, he applied "to have some more blood drawn off" and was relieved by the removal of 30 oz. The spleen, which extended three fingers' breadth below the costal margin *before* the venesection, could barely be felt after it.

Summary (Case 4).—Under observation 5½ years. Face congested and slightly cyanosed. Spleen became palpable under observation. Arteries thick and tortuous. Blood pressure 124–130 mm. Hg. Erythrocytes 10,500,000 per c.mm. Severe albuminuria, increasing. Knee-jerks not obtained. Size of spleen much reduced by venesection. General condition remains good.

CASE 5.—The patient, an engine-driver, aged 40, was admitted to the London Hospital on June 27th, 1906, under the care of Dr. Robert Hutchison. He complained of shortness of breath, palpitation, headache, and general weakness.

History.—For a few months he had experienced slight attacks of giddiness while at work, and had noticed that his face had become rather blue. These slight symptoms were ignored until three months before admission, when he also began to suffer from shortness of breath, left frontal headache, and palpitation. He perspired more freely than usual. Loss of appetite and general weakness developed so that he became unable to work. There had been no pain in the chest or abdomen and no cough. Walking had been painful for a few days on account of soreness of the right calf. When attention was drawn to the clubbing of the fingers, the patient stated that he had noticed it developing in the last six or seven weeks.

Previous health.—He had enjoyed good health until a few months before admission. He was married and had four children. He had been a total abstainer for 20 years. There was no history of syphilis. The family history revealed nothing important.

On admission.—The face was extremely florid and cyanosed. The lips and tongue were cyanosed, the other mucous membranes congested. The hands and feet were congested and blue; the fingers and toes were clubbed. The right leg showed dilated veins and a few red and tender raised areas. There was scarring with pigmentation above both ankles. These changes were attributed to the varicose veins. Œdema was absent. His weight was 9 st. 10 lb. There was no oral sepsis and the teeth were sound. The pulse was regular and of moderate volume; the radial artery was thickened and slightly tortuous. Visible episternal pulsation and impairment of the percussion note on the right side of the upper end of the sternum led to a suspicion of aneurysm. The apex beat of the heart was in the fifth left intercostal space just external to the nipple line. The area of cardiac dulness was slightly enlarged to the left. The heart sounds were normal. No murmurs were heard. No abnormal physical signs were found in the lungs. The spleen was not felt, nor was it enlarged to percussion. The liver was not enlarged. The pupils were equal and reacted to light. The knee-jerks were present. The patient seemed rather garrulous and showed slight confusion of ideas. The urine contained no albumin and no sugar. The radiograph revealed slight dilatation of the aorta, but no localised aneurysm.

A *blood examination* showed: Erythrocytes, 10,520,000 per c.mm.; hæmoglobin, 110 per cent.; leucocytes, 10,000 per c.mm. *Differential count:* Polymorphonuclears, 75 per cent.; lymphocytes, 22 per cent.; eosinophils, 1 per cent.; hyaline cells, 2 per cent.

Course.—Except for three temporary rises to 99° or 100° F. the temperature remained subnormal during his stay of seven weeks in hospital. The pulse-rate averaged 84, the respiration-rate 24 per minute. A venesection to 76 oz. was performed on August 3rd; the patient experienced considerable relief from it. A sample of this blood was citrated and sent to Dr. F. Parkes Weber, who kindly made a special examination. His report was as follows:—

"1. After standing in a well-corked bottle during the night the plasma layer formed only 3 mm. out of the total column of 120 mm. 2. Specific gravity of the citrated blood, 1068. 3. Hæmoglobin (Haldane's method), 130 per cent. 4. Red cells, 11,750,000 per c.mm. 5. The viscosity coefficient, using a viscosity tube of bore 1 mm., was about 13 times that of water at the room temperature (68° F.). (Normal human citrated blood is about five or six times that of water)."

After his discharge on August 14th, 1906, the patient returned to work. He remained fairly well until May, 1907, when he began to lose strength and to experience pains all over his body, shortness of breath, and palpitation. Headache became severe, especially after exertion. The attacks of giddiness came on during his work, and almost caused him to fall. He sweated profusely at times.

In *June, 1907*, he was readmitted to hospital on account of the return of symptoms. He had the same florid and cyanosed appearance as before. The skin of the trunk showed some general brown pigmentation. Slight œdema of the ankles was present. There was visible pulsation of the carotid arteries and in the episternal notch. The blood pressure was 120 mm. Hg. The apex beat of the heart was in the fifth space in the nipple line; the impulse was powerful. The first sound at the apex was accompanied by a systolic murmur which disappeared a few days later. At times a systolic murmur was heard in the third left intercostal space. There was a want of elasticity in the chest. On auscultation, expiration was found to be slightly prolonged. On this occasion the spleen was palpable on deep inspiration. The liver was not enlarged and there was no ascites. The urine on admission contained a trace of albumin, which disappeared within a few days. The weight, temperature, pulse, and respiration were the same as on the previous admission. Ophthalmoscopic examination showed nothing striking; the vessels were slightly distended. A *blood examination* showed: Erythrocytes, 12,000,000 per c.mm.; hæmoglobin, 140 per cent.; specific gravity, 1062. No abnormal cells were seen. The patient was discharged on August 1st, 1907, feeling better for the rest in bed.

In *December, 1907*, he was readmitted. He had been unable to work for a month owing to general weakness and shortness of breath. He had sustained two severe attacks of epistaxis in the week before admission. He missed the warmth of his position as engine driver, for he had been transferred to work in a filter bed. On one occasion when he was cold and wet he became "almost black." Shortly afterwards he was compelled to become a casual labourer. Headaches and attacks of giddiness had been infrequent but severe. On examination the general appearance was as before. The spleen could not be felt on this occasion. There was a systolic murmur at the apex of the heart and in the tricuspid area, but the area of cardiac dulness was not enlarged. The erythrocytes numbered 12,000,000 per c.mm. on admission and also on discharge. A course of arsenic was given for one month; an initial dose of 4 minims of liquor arsenicalis was gradually increased to 12 minims three times a day. During this time the patient remained in bed. His mental condition was slow and he was so nervous that the prick of a needle upset him. His weight was 10 st. 9 lb. The cyanosis diminished and the symptoms greatly improved before his discharge on Jan. 19th, 1908. In February Dr. Boycott[6] kindly made special observations and found that the oxygen capacity of his blood was 3375 c.c., and that the total blood volume was 10½ litres (normal about 500 c.c. and 3 litres respectively).

In *April, 1908*, he was readmitted for venesection. His previous symptoms had increased, and for a fortnight he had suffered from vomiting three or four times a day independent of food. On examination the spleen could not be felt. The erythrocytes numbered 12,100,000 per c.mm. The coagulation time was 2½ minutes. On April 29th, after the above estimation, venesection was performed. Two pints of blood had been withdrawn from the arm when the patient became restless and the extremities cold. He rapidly recovered when the venesection was stopped. A week later the erythrocytes numbered 11,300,000 per c.mm. The rate of pulse and respiration in the week following the venesection did not differ from that in the week preceding it. The patient felt much better.

In *June, 1908*, venesection (40 oz.) again gave relief to his symptoms On that occasion the spleen was palpable, and there was some œdema of the feet. On examination in April, 1910, the spleen could not be felt.

In *October, 1910*, the patient had a severe attack of vomiting which lasted for 24 hours, and was accompanied by a throbbing headache. The attack terminated in a profuse hæmatemesis followed by melæna. He felt so weak and cold during the next three weeks that he applied for readmission and was taken into the hospital on Nov. 4th, 1910. He said that he had been fairly well since 1908 until four months before admission. Since then the shortness of breath had returned, and vomiting had occurred almost daily, often preceded by cold sweats. He had also suffered from pain in the back, shivering attacks, tinnitus, and giddiness. On examination he seemed more cyanosed than on previous admissions. The spleen was not palpable. A systolic murmur accompanied the first sound at the apex and over the lower end of the sternum. A purpuric rash was present on both legs. The weight was 9 st. 7 lb. The urine contained no albumin. The erythrocytes numbered 12,000,000 per c.mm. and the coagulation time was 3¼ minutes. Venesection was performed to the amount of 2 pints, and on the following day the red cells numbered 11,300,000 per c.mm. The temperature was 97° before the venesection and 98°–99° during the week following. On Nov. 14th, 1910, he was discharged feeling much relieved.

On *Jan. 4th, 1911*, he died at home with signs of heart failure. For a few days before death his face was of a deep purple colour, the feet were œdematous, and there was considerable ascites. Mental changes were prominent—muttering delirium and incoherent raving, but no violence. To Mr. Allan Hair, of Hounslow, I am indebted for these particulars of the final illness.

Effects of treatment.—1. *Venesection.*—August 3rd, 1906: Venesection (76 oz.). April 29th, 1908: Erythrocytes, 12,100,000 per c.mm. Venesection (40 oz.). May 6th: Erythrocytes, 11,300,000 per c.mm. June: Venesection (40 oz.). Nov. 7th, 1910: Erythrocytes, 12,000,000 per c.mm. Venesection (40 oz.). Nov. 8th: Erythrocytes, 11,300,000 per c.mm. On each occasion relief followed the blood-letting. It was noticed that the temperature, which was subnormal, was always at a slightly higher level during the week after the venesection—e.g., 97°–98° became 98°, 97° became 98°. No change occurred in the rate of pulse or respiration.

2. *Arsenic.*—In December, 1907, a course of arsenic was given for

[6] Boycott: loc. cit.

one month. The initial dose of liq. arsenicalis, m 4 t.i.d., was gradually increased to m 12 t.i.d. During this time the patient remained in bed. The cyanosis diminished and the symptoms improved.

Summary (*Case 5*).—Under observation four and a half years. Face florid and cyanosed. Pigmentation of the skin. Clubbing of fingers. Spleen at times enlarged, at others not palpable. Arteries thickened. Dilated aorta (radiograph). Blood pressure, 120 mm. Hg. Erythrocytes 10,520,000 per c.mm. Epistaxis, hæmatemesis, purpura. Profuse sweating. Mental changes. Death, five years after onset of symptoms, with heart failure.

CASE 6.—The patient, a man, aged 58, was admitted to the London Hospital on Oct. 18th, 1912, under the care of Dr. Francis Warner. He complained of pain and swelling in one toe, but this was a trifling perionychia and it was for the investigation of his blood condition that he was admitted by Dr. Cecil Wall.

History.—Ten or twelve years ago he began to suffer from severe pain beneath the sternum, commencing about an hour after food and lasting one or two hours. Very shortly afterwards he noticed that his nose and cheeks were becoming "red." This was ascribed to the indigestion. Within a year or two the whole face had become as "red" as it was on admission. The patient thought that the indigestion and the redness were due to exposure to the fumes from a paint factory. He had worked in an adjoining yard during two and a half years, and whenever the wind blew in his direction the smoke and fumes from the boiling paint were almost unbearable. It caused him and his fellow workmen to cough and spit. He did not know that any of his mates had become "red" as he had done; they all complained bitterly of the fumes.

The pain after food was troublesome on and off for several years, and at one time he was compelled to take to his bed for a month. For the last few years it had been less troublesome. There had never been vomiting, hæmatemesis, or melæna. For many years the gums had been prone to bleed, and after extraction of a tooth a year ago he bled for two days. There had been no other hæmorrhages.

For the last four years his chief complaint had been sudden attacks of giddiness lasting about five minutes and occurring, at some periods several times a day, at others once a week. In the attacks he felt "tipsy" and had to seize hold of some support. He had experienced for years occasional attacks of tinnitus, a buzzing noise in both ears, lasting about 20 minutes. These occurred quite apart from the attacks of giddiness. He had become less able to do his work in recent years on account of general weakness, though he had not wasted. When hard at work he sometimes felt faint and began to tremble, but this would pass off in a few minutes. There had been no shortness of breath or palpitation, and no headache. Slight nocturnal frequency had been present for some years.

Previous health.—At the age of 16 he contracted small-pox, at 18 syphilis. He had rarely taken beer or spirits. There was nothing noteworthy in the family history.

On admission.—The whole face and exposed part of the neck were deep bluish-red and showed telangiectases. The lips were bluish-red; the tongue was red and the palate injected. The left eye was blood-shot, but the retina showed little congestion. The right eye had been destroyed by an accident in 1888. The hands and feet were not congested and the fingers were not clubbed. The skin of the trunk and limbs was not congested and there was no pigmentation or œdema. A slight degree of perionychia was found on the third right toe, but seemed to be quite independent of his blood condition. The superficial lymphatic glands were not enlarged. Two teeth were carious and the gums were dirty. The temperature was subnormal (97°–98·4° F.). The weight was 10 st. 2 lb.

The pulse was regular and of frequency 86. The radial artery was thick and tortuous. The blood pressure measured 170 mm. Hg. The apex beat of the heart was in the fifth space, five inches from the mid-line. The area of cardiac dulness was slightly increased to the left. The second sound in the aortic and pulmonary areas was accentuated, otherwise the heart sounds were normal and there were no murmurs. The respirations numbered 22 per minute. The lungs showed no abnormal signs. Nothing abnormal was seen in the chest on radiographic examination. The spleen was hard and easily felt; it extended one inch below the left costal margin. The liver was felt one inch below the right costal margin. There was no ascites. The knee-jerks were readily obtained, and no abnormal signs were discovered in the nervous system. The urine contained a trace of albumin; a microscopical examination of the deposit showed urates only.

The *blood report* on Oct. 21st, 1912, showed: Erythrocytes, 10,600,000 per c.mm.; hæmoglobin, 130 + per cent.; leucocytes, 11,000 per c.mm. *Differential count:* Polynuclear neutrophils, 80·2 per cent.; polynuclear eosinophils, 2·2 per cent.; small lymphocytes, 8 per cent.; large lymphocytes, 6·8 per cent.; large hyaline cells, 1·8 per cent.; coarsely granular basophilic cells, 1 per cent. Two *megaloblasts* were seen while counting 500 leucocytes. The Wassermann reaction in the serum was negative.

Summary (*Case 6*).—Under observation one week. History of exposure to fumes. Face deep bluish-red. Spleen enlarged. Arteries thickened. Blood pressure 170 mm. Hg. Erythrocytes 10,600,000 per c.mm. Slight albuminuria. General condition good, after 10–12 years' symptoms.

My thanks are due to Dr. Hadley, Dr. Hutchison, Dr. Thompson, and Dr. Warner for kind permission to publish the cases under their care. Case 3 was shown by Dr. Theodore Thompson, and Cases 4 and 5 were shown by Dr. Charles Miller, at the Clinical Section of the Royal Society of Medicine on Nov. 13th, 1908. Dr. P. N. Panton and Dr. H. L. Tidy, clinical pathologist and assistant clinical pathologist to the hospital, carried out the blood examinations, and have given me help in many ways. I desire to acknowledge my great indebtedness to Dr. Robert Hutchison for his valued advice and for the use of his private notes.

THE VARIETIES AND TREATMENT OF LATERAL CURVATURE OF THE SPINE.[1]

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LATERAL curvature of the spine may be classified according to its pathological causes or according to its anatomical varieties.

Classification according to Pathological Causes.

Under the first method of classification the varieties to be recognised are—

1. *Congenital.*—There is usually some congenital malformation of the vertebræ, such as wedge-shaped vertebræ or a half vertebra. These most often occur at the lumbo-sacral junction or in the upper dorsal region. When the latter region is affected there is often also a malformation of the ribs, one or more being bifurcated. In congenital scoliosis the primary curve is sharp and is present at birth; later secondary curves arise as soon as the upright position is assumed.

2. *Rickety.*—Some of the very worst curves are due to rickets. They arise early in life, before the child has walked, and owing to mechanical factors they tend to increase for years after the active processes of the disease have ceased. The usual sites for rickety curves are to the left in the dorso-lumbar region, and to the right in the upper dorsal region.

3. *Secondary.*—Secondary curves may be due to:—

(*a*) Tilting of the pelvis from shortness of one leg. This produces a long curve extending throughout the lumbar and dorsal regions toward the side of the short leg. An apparent anomaly is here shown in that this curve raises the shoulder on the side of the short leg.

(*b*) Tilting of the pelvis from fixed adduction of one hip-joint. This produces a long curve away from the side of the adducted hip.

(*c*) Torticollis. Contraction of the left sterno-mastoid causes a cervical curve convex to the right, and a compensatory dorsal curve convex to the left—that is to say, the dorsal curve is toward the contracted muscle.

(*d*) Fibrosis of the lung or adherent and thickened pleura produces a dorsal curve convex toward the sound side, usually accompanied by evident rotation of the vertebræ. In other forms of secondary curves rotation of the vertebræ is, as a rule, slight. The curve secondary to lung trouble presents another peculiarity, from which the condition of the lung may sometimes be guessed before auscultation and percussion have been carried out. In an ordinary case of right dorsal curve with evident rotation and consequent prominence of the right ribs posteriorly, there is a corresponding prominence of the left ribs anteriorly; if the curve is due to disease of the lung or pleura this prominence of the left ribs may be absent, so that the whole left side of the thorax is smaller than the right.

(*e*) Spinal caries may produce a lateral curve in two ways. 1. Asymmetrical spasm of muscles may produce a lateral tilt of the spine during the active stages of the disease. Such a lateral deviation is an important evidence of active disease. 2. Asymmetrical destruction of bone may leave vertebræ that are wedge-shaped, and so give rise to secondary lateral curves just as do the congenital malformations of the vertebræ. Such lateral curves are most likely to arise when the disease has occurred in the lower lumbar region or at the dorso-cervical junction.

4. *Paralytic.*—This is most commonly due to anterior poliomyelitis, but lateral curvature is also an incident in many other forms of paralysis. Poliomyelitis may produce a lateral curve in three ways. (1) Paralysis of one erector spinæ, partial or complete, produces a long curve convex toward the paralysed side; (2) paralysis of one psoas may produce a rather sharp convexity in the dorso-lumbar region toward the sound psoas; (3) fixed abduction or adduction at one hip-joint as a result of the paralysis may produce a secondary curve.

5. *Adolescent or static.*—This class includes the greater proportion of cases of lateral curvature, including all those

[1] Founded on a lecture delivered in the Post-Graduate course at St. Bartholomew's Hospital.

instances in which the curve arises during the period of growth, and in which no primary cause can be discovered.

6. *Hysterical.*—This class is quite a distinct one. The deformity varies greatly, but there is usually much lateral displacement of the body, with lateral deviation of the vertebræ, but with a minimum degree of rotation. There is often also some other hysterical deformity such as adduction of the hip, or some other peculiarity in the gait.

Anatomical Classification.

The above classification refers to causes and not to anatomical varieties. In classifying anatomically the general factors in the causation must be borne in mind. These are:—1. *Posture.* An erect and symmetrical posture depends upon (*a*) symmetry of the bones; (*b*) proper support by the ligaments; (*c*) balance between the action of the various muscles. During the period of growth there must be therefore—(*a*) regular and symmetrical growth of the bones; (*b*) proper support by the ligaments; (*c*) a proper balance between the muscles. Now the growth of bone can be modified by the strain put upon it, the strength of ligaments depends also upon the strain to which they are subjected, and the symmetrical development of muscles depends upon their proper use. Therefore, during the period of growth bodily symmetry can be modified by these factors—viz., strain thrown unevenly upon the bones and ligaments and unequal development by use of the muscles. It is necessary, therefore, during this period to maintain such habitual postures as will insure regular and symmetrical growth.

It is a common error to speak of faulty or vicious postures. It may be safely maintained that all postures that are anatomically possible are good and not vicious; but almost any posture becomes vicious by becoming habitual, for it throws an habitual strain upon the growing parts, and also tends to exercise certain muscles unduly, and so cause unequal muscular development. It is necessary, therefore, to study the commoner habitual postures, for these themselves constitute the slighter varieties of spinal curvatures found in adolescents, and if they persist into adult life may then constitute fixed curves. They have also much to do with the production of the more severe curves, although they are not, properly speaking, the cause of these.

2. The second factor in the production of spinal curvatures is some defect or disease of the bones, ligaments, or muscles. This may be obvious, as, for example, the defective shape of the bones in a congenital case, the undue softness of the bones in rickets, or the muscular paralysis in poliomyelitis. In only two of the severe forms of scoliosis is there no evident factor of this sort: in cases of disease of the lung, in which the cause of the severe rotatory deformity is probably to be found in the unbalanced movements of the ribs, and in the common severe form of adolescent scoliosis. In the latter, although it is difficult to prove, it is practically certain that there exists in the spine those adolescent defects which in other places give rise to such conditions as knock-knee, coxa vara, and flat-foot—that is to say, there is an undue softness and malleability of the bones, or a laxity of the ligaments, or a relative weakness of some of the muscles, or possibly a combination of these factors.

Anatomical Varieties.

A preliminary anatomical classification then of lateral curvatures will be into:—1. Postural curves; the position is one which the normal spine can assume. 2. Structural curves; the position is one which the normal spine cannot assume.

In any case there may be one or more of three elements of deformity. *Displacement* of the spine bodily to one side of a vertical line drawn upward from the spine of the last lumbar vertebra. *Deviation* of the spinous processes to one side of a line drawn between the spinous processes of the seventh cervical vertebra and the last lumbar vertebra. *Rotation* of the vertebræ about a vertical axis.

This last is the only difficult part of the deformity to define or explain. Owing to the structure of the vertebræ every movement of side bending of the spine is accompanied in the dorsal region by a rotation of the vertebræ, so that the bodies of these bones are displaced further towards the convexity of the curve than are the spinous processes. In other words, the curve formed by the bodies of the vertebræ is an arc of a smaller circle than that described by the spinous processes. As a result of this the transverse processes on the convex side point more backwards than they should; they raise up the erector spinæ muscle, or in the dorsal region cause the ribs to project backwards on the convex side.

A small degree of this rotation occurs in all lateral curvatures, more particularly when the dorsal region is affected, but in all postural cases this rotation disappears when the spine is flexed. In the structural cases, however, this rotation may become very marked, and fail to disappear on flexion.

Several reasons may be suggested to explain the occurrence of this rotation. According to one, it is nothing more than an abnormal increase in the rotation, which, as already explained, must occur whenever a lateral curve is artificially produced by side flexion of the spine. (Fig. 1.) A second explanation is that the spinous processes are held to the middle line by the action of the erector spinæ muscle,

FIG. 1.

Left dorso-lumbar scoliosis due to paralysis of the right psoas muscle in poliomyelitis.

but that the bodies are not, and that therefore the latter tend to deviate further and so produced rotation. In the dorso-lumbar region a convexity to one side can undoubtedly be produced by the unbalanced action of one psoas muscle, as, for example, in cases of poliomyelitis in which one psoas is paralysed. In this case the over-acting muscle is on the side of the convexity, and as it pulls chiefly upon the anterior part of the vertebra, this (i.e., the body) will tend to be displaced more than the spinous process. The third explanation applies to the dorsal region only; it depends upon the fact that the elevation of the ribs on one side exerts a leverage action upon the vertebræ, tending to twist the vertebral bodies toward the side of active movement. Thus unilateral action of the ribs would tend to produce rotation. This is a possible cause of the rotation that occurs in cases of deficient expansion of one side of the chest after empyema and in cases of fibrosis of the lung or pleura. The second of

these explanations seems to have the most general application, but possibly all the factors mentioned are of importance.

Postural curves.—Postural curves are those which represent an attitude of the spine which is normal in certain attitudes, but which is abnormal in that it has become habitual. It becomes necessary to examine the effect of some of the common attitudes upon the spine.

In the position of attention the spinous processes should make a perfectly straight line, vertical in direction. This is an attitude of strain involving considerable muscular effort. The new stand-at-ease position, in which the feet are separated by about a foot, is also one in which the spine is straight. It is more restful than the position of attention, because the base of support being wider less muscular effort is involved. In the old stand-at-ease position, in which the left knee is bent, and in all positions in which the pelvis is tilted down on one side, a long convexity is produced in the spine towards the side on which the pelvis is dropped. In this curve there is a displacement of the whole body to the left, a deviation of the spinous processes to that side, and a slight degree of rotation, the ribs posteriorly being a little more prominent on the left, and the left shoulder being raised and brought forward.

In carrying a weight one or other of two attitudes may be assumed. If the weight is in the right hand the right shoulder may be a little raised, part of the weight being thus thrown upon the scapular muscles. In this position a very slight curve is produced towards the right in the upper dorsal region. More commonly the right shoulder is dropped, a long curve to the left being produced, similar in all respects to that previously described except that the displacement of the body may be absent.

This tilting of the body to one side, most often to the left, may be produced in many other ways, but practically the above examples, showing the effect of tilting the pelvis and the use of one hand, give a clue to the common causes of such postures.

In sitting writing two postures are common. In one the whole body is tilted to the left, a long left curve being produced. In the other the right shoulder is raised and twisted forward, a very slight curve to the right in the upper dorsal region being produced. Twisting of the shoulders—e.g., in facing to the right—produces a convexity in the dorsal region to the left, with some rotation of the vertebræ, and with a displacement of the body to the left. The usual curve produced in lying is a long convexity towards the side which is undermost, with rotation of the vertebræ to that side, but displacement of the body toward the opposite side.

Structural curves.—Structural curves are those which represent an attitude which is not possible to the normal spine. The simplest test for the presence of a structural curve is to test the possibility of complete voluntary correction of the deformity in two simple positions. First, the patient is made to stoop forward and touch the ground with the fingers, the knees being kept extended. All postural curves will at once disappear in this flexed position. Secondly, the patient is made to assume the neck-rest position, with the head erect and the elbows forced well back. By careful guidance she is then induced to assume a completely erect attitude. By this means all postural curves should be completely corrected.

Postural curves are almost invariably single curves; they are often also called C curves. A double curve—e.g., left lumbar convex and right dorsal convex—can be voluntarily produced, as by dropping the left side of the pelvis and then rotating the shoulders so that the head faces to the left. But such double curves very seldom arise as habitual attitudes, and the presence of a double curve may be taken as strong evidence that the curve is structural. In postural curves also the amount of rotation of the vertebræ is small; the presence of any considerable rotation, and particularly the presence of rotation which persists in the flexed position of the spine, is strong evidence of the presence of a structural curve.

The commoner lateral curves may now be classified as follows:—

1. *Weak spine.*—The spine is weak, flat, and the curve variable, so that one day there is a single curve to the right, another day a similar curve to the left.

2. *Single curves.*—The commonest of these are (*a*) left total curve, extending throughout the lumbar and dorsal regions; (*b*) high right dorsal, with elevation of the right shoulder; (*c*) right total; (*d*) left lumbar, like the first, but extending only up to the dorso-lumbar junction; (*e*) right lumbar.

These single or C curves are very common as postural deformities in children; they correspond, it will be seen, to the common postures adopted in standing and sitting. Occasionally they may become more severe and incapable of voluntary correction, so that they become structural curves. More often, however, the structural curve is double and arises through a transitional curve.

3. *Transitional curves.*—These arise according to Lovett in the following way. In a left total curve the left shoulder is rotated forward and the right backward. In order to bring the shoulders square the patient twists the upper part of the spine towards the left; this, whilst it leaves the curve to the left in the lumbar region unaffected, produces a reverse curve to the right in the dorsal region, this curve being accompanied by a considerable amount of rotation. A double curve is thus produced—left lumbar, right dorsal; this curve is at first capable of voluntary correction, although with considerable difficulty. It soon, however, becomes fixed.

4. *Double curves.*—These are so variable as to form an almost infinite variety. The most frequent are: (*a*) left lumbar, right dorsal; (*b*) right lumbar, left dorsal.

5. *Treble curves.*—These may be a further stage of a double curve, or may arise where there is a primary cervical curve, as in torticollis. For example, a left sterno-mastoid torticollis may produce a right cervical, left dorsal, right lumbar curve.

As already mentioned, the production of the postural curves can be explained on purely mechanical grounds; this is also true of the transitional curves and of the slighter cases of structural scoliosis. But mechanical factors will not explain the production of the more severe and progressive forms of structural curves. If it did every patient with a short leg or an adducted hip ought to develop a true structural curve, whereas in the enormous majority of cases only a postural curve is so produced. In the progressive cases it is necessary to presume that there is some other factor, such as an undue softness of the bones, or a laxity of the ligaments, or a relative inequality of the muscles. This fact is of importance when the proper treatment of these cases is considered.

The original classification of lateral curves according to their causation may now be compared with the anatomical classification as follows:—

Postural curves	The slighter degrees of static scoliosis.
	Hysterical scoliosis.
	Scoliosis secondary to short leg.
	,, ,, ,, adducted hip.
Postural passing into structural	Rickety scoliosis.
	Static scoliosis.
	Paralytic scoliosis.
	Scoliosis secondary to torticollis.
Structural curves from the first	Congenital scoliosis.
	Scoliosis secondary to spinal caries.
	,, ,, ,, fibrosis of the lung, &c.

Treatment.

In a deformity as complicated as is scoliosis the first stage in treatment is evidently to carefully analyse the deformity, to determine whether it is postural or structural, and to find and correct any primary cause.

The problem of treatment then becomes purely mechanical and involves four methods. 1. The strengthening of the spinal muscles or of certain sections of them. 2. The training of the spinal muscles so that the patient without voluntary effort assumes a symmetrical habitual posture. 3. Mechanical and forcible stretching of the spine to undo curves which have become at all fixed. 4. Mechanical support to the spine to prevent increase of the deformity.

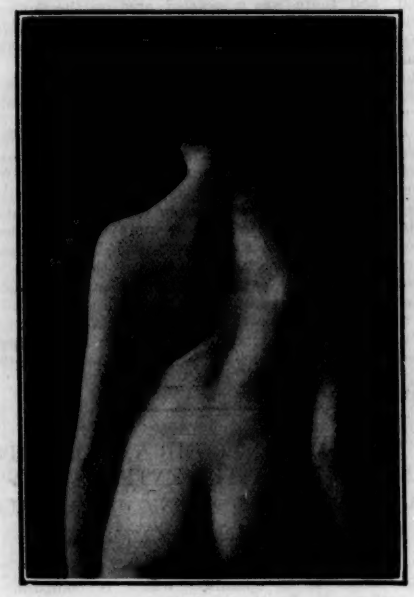
The first two of these, and to a certain extent the third, constitute the treatment of scoliosis by exercises. These exercises have been elaborated in order to carry out these principles of treatment, and in all the postural cases and in the slighter degrees of structural curves, they are all that is required to effect a cure. At the same time it must be remembered that a postural deformity is often not so much evidence of lack of muscular power as of lack of will power, the ability to attain the correct posture being present, but the will power to keep this posture until it becomes habitual being lacking. This being so, the treatment of these cases

may be very long and tedious, and it may occasionally be necessary to fix the spine in the corrected posture, and so to endeavour to render the latter habitual.

But although exercise treatment is in the majority of cases all that is necessary, yet it is absurd to maintain that no other treatment should ever be carried out. The fixed structural cases can only be improved by exercises up to a certain point; such deformity as is not corrected by suspending the patient cannot be cured by this means. And, in addition, certain of the progressive cases tend to get steadily worse even when under the most expert treatment. Hence two other methods of treatment require to be mentioned—viz., correction by mechanical means, and the provision of a support to prevent increase of the deformity.

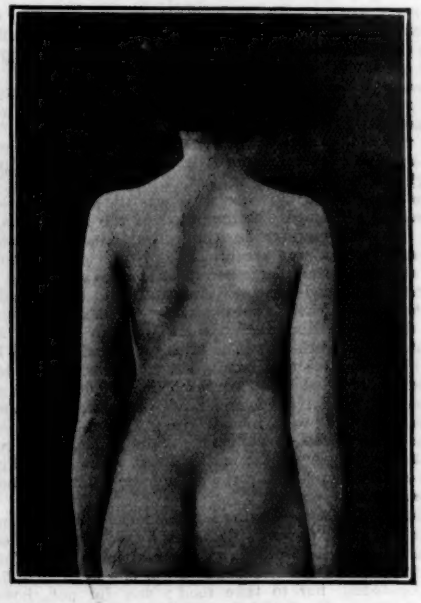
Correction by force is carried out in the course of exercise treatment by direct side flexions and by twisting, as well as by means of leg and arm carrying. One of the most useful methods of stretching is by means of straps encircling the convex side; by pulling on the anterior end of the strap

FIG. 2.



Adolescent scoliosis.

FIG. 3.



The same patient as in Fig. 2 after six months' treatment by forcible correction in plaster-of-Paris jackets.

both forcible stretching of the concave side and also forcible rotation can be produced, and a temporary improvement obtained in the spine. If this stretching can be carried out daily considerable improvement may be secured, but one feels that the improvement could be produced much more rapidly if the position obtained by stretching could be maintained between treatments.

Correction in plaster-of-Paris jackets depends upon this idea. (Figs. 2 and 3.) The correction is carried out with the patient lying upon a frame, and whilst the strap pressure is kept up as forcibly as the patient will bear, a plaster-of-Paris corset is applied. This is left on for three to six weeks or until it is felt to be loose. It is then replaced by another jacket fitted in the same manner, further correction being possible in each jacket. An important aid in correction by this means consists in the cutting of large windows in the plaster on the concave side of the curve behind and on the opposite side in front, thus allowing expansion of the chest at the places where there was flattening, and also, through the posterior window, by introducing the leverage action of the ribs to which allusion has already been made. Recently Abbott has introduced a further modification in this form of treatment by carrying out the correction with the spine in a flexed position; this is said to be productive of much better and more rapid results, but I have at present insufficient experience to speak of it. Inasmuch as scoliosis is a deformity produced by mechanical forces, it seems reasonable to suppose that such forces properly applied can correct it; we seem to be now fairly on the road to the discovery of the proper manner of applying these correcting forces.

Treatment by forcible correction is not at an end when the maximum correction has been attained. Unless a suitable after-support is worn whilst the spinal muscles are strengthened by exercise treatment a relapse is certain. Such a support may be made of any suitable material, such as plaster-of-Paris, poroplastic, or celluloid; it must fit firmly, particularly over the pelvis and on the convex side of the curve, and must be fitted in the best position of the spine. It is, perhaps, best made from a plaster-of-Paris model, but a good mechanic, if he is supervised, can fit a poroplastic jacket on the patient in the suspended position which will answer all requirements.

The total period of treatment of these cases of scoliosis which require forcible correction must be long, certainly a year, often two years. The period of final treatment by exercises should be itself at least six months.

Occasionally in severe scoliosis a permanent support is required, either because the curve cannot be corrected and tends to increase, or because the general health is not sufficiently good to allow of the somewhat trying treatment by strenuous exercises or by forcible correction. For such a purpose various supports may be used. The essential points are that the support should take a very secure hold upon the pelvis, and that it should fit tightly against the convex side of the curve and loosely upon the concave side. A poroplastic jacket fitted in a suspended position and properly strengthened is on the whole very efficient, but it is not very durable, and should not be left for more than three months without inspection.

Devonshire-place, W.

PURPURA FULMINANS.

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SIXTY-FIVE cases of the fulminant type of purpura hæmorrhagica have been published, and the notes of the following case may be of interest, not only on account of the rarity of the condition, but because in a few salient characteristics its progress differed from the majority of recorded cases.

The patient, a housewife, aged 58, was admitted to the County Asylum, Whittingham, on June 7th, 1912.

History.—Prior to admission she had been treated at home, and while troublesome, melancholic, and sleepless, took her meals voluntarily and apparently received sufficient nourishment. Although by no means a very active or vigorous woman, she had never, according to her relatives' statements, been seriously ill; during the last year or two, however, she had complained of "rheumatic" pains over the joints of the arms, and varicose veins, which had been noticed for many years, occasionally caused her unusual inconvenience. She had been married for 20 years and had one son, who was apparently quite healthy.

Family history.—No neuropathic or psychopathic taint was ascertained in her heredity and no relative had suffered from purpura, although it was admitted that her family had been all subject to "rheumatism."

Condition on admission.—On admission she was depressed and restless, and had many delusions. Now she would scream "that someone was setting her soul on fire," and now "that they had got her for ever"; at times she wept and moaned and tossed about in bed. Physical condition: Height, 5 ft. 5 in.; weight, 7 st. 2 lb.; she was thin and ill-developed. An old bronchitis was the only condition of interest in her lungs. Examination of the heart revealed a soft systolic murmur in the mitral area; the second pulmonic sound was accentuated. No abdominal anomaly was observed; the splenic and hepatic areas of dulness were normal. She had varicose veins, and both ankles and feet were swollen, although not markedly. Reflexes: Superficial and deep were normal, and there were no areas of anæsthesia or hyperæsthesia. The urine, of specific gravity 1018, contained a trace of albumin, but no sugar, pus, or blood. Blood count: Red blood corpuscles, 3,500,000 per c.mm.; leucocytes, 7000; hæmoglobin, 70 per cent.; polymorphonuclears, 70 per cent.; small lymphocytes, 15 per cent.; large lymphocytes, 8 per cent.; eosinophiles, 5 per cent.; myelocytes, 2 per cent.; mast cells, 0. The thyroid gland was enlarged and firm; the lymphatic glands generally were normal.

Course of disease.—During her residence in the asylum the acuteness of the patient's delusions waned, and at times she seemed less self-absorbed, but no real improvement of her mental condition occurred. There was considerable difficulty in persuading her to take food; she did not, however, require to be forcibly fed, and as she gained slightly in weight at the end of the first week she obtained satisfactory nourishment. Six days after admission she was out of bed, spent a considerable part of the day out of doors, and shared the ordinary asylum dietary

On June 18th at 6 A.M. (11 days after admission) a dark purple patch was observed in the left groin of about the size of a five-shilling piece, and the patient complained of nausea. By 10 A.M. the lower part of the abdomen was covered with mottled patches from the umbilicus to the symphysis and between the crests of the ilia. A circular band was appearing on the right buttock, and smaller masses were commencing on the back and chest. The pulse rate was now 96, temperature 97·6° F., respirations 24, and swelling of the feet and legs was more marked than formerly. The urine contained 2 per cent. albumin. A blood count gave the following figures: hæmoglobin, 65 per cent.; red cells, 3,200,000, marked poikilocytosis; white cells, 7500—polymorphonuclears, 70 per cent.; large lymphocytes, 10 per cent.; small lymphocytes, 18 per cent.; eosinophiles, 1 per cent.; myelocytes, 1 per cent.; mast cells, 0.

At 4 P.M. the abdomen was almost completely covered, very few parts of normal coloured skin were to be seen on the buttocks and on the front of the chest, and down the thighs the discolouration was proceeding with dramatic and startling rapidity. Swelling of the feet and legs was marked; the temperature was still subnormal—98°. At 5 P.M. she vomited a considerable quantity of dark-coloured fluid blood, and at 5.30 blood was present in the urine and the stools. She became more enfeebled as the evening passed, her pulse rising to 110 and "thready" in character, but her temperature remained at 98°.

At 2 A.M. the anterior surface of the thorax and abdomen, and on the posterior aspect the area between the tenth dorsal vertebra and well below the buttocks presented an almost uniformly dark purple discolouration. The shoulders and upper arms were not so completely covered, areas of pale waxy-looking skin appearing between the purpuric patches. Discolouration of the neck had commenced, and the left ear and nose were becoming involved. A blood count was again made with the following result: hæmoglobin, 60 per cent.; red blood corpuscles, 2,800,000; white blood corpuscles, 8000; a slight increase in the number of lymphocytes was noted. The coagulation time of the blood was 10 min. 30 sec.

At 4 A.M. she died after a severe hæmatemesis, and no part of her body had escaped the ravages of the disease. The anterior aspect of the trunk was most, and the face the least, affected; on the latter the left ear and nose were discoloured, and there was a mottled area on the forehead. Unfortunately neither persuasion nor pleading could obtain from her relatives permission to conduct a post-mortem examination.

Although temperatures in the insane are always variable, it is remarkable that throughout the attack the temperature never reached the normal register. In this respect the above case differs from any of the records of purpura fulminans to which I have had access. "Any of the severer forms of purpura must be discriminated from scurvy and from hæmorrhagic small-pox, scarlet fever, measles, &c." (Butler). In this case there was no swelling of the gums, the patient had obtained ample nourishment, and the hæmorrhagic forms of the exanthemata could be excluded with certainty. The apparently "idiopathic" genesis of the disease, the subnormal temperature, and the extremely rapid and extensive discolouration are noteworthy. As far as I am aware this is the first reported case of purpura fulminans occurring in an insane patient. I am indebted to Dr. J. F. Gemmel, the medical superintendent, for permission to publish these notes.

Whittingham.

JEJUNOSTOMY IN COMBINATION WITH ANTERIOR GASTRO-ENTEROSTOMY IN THE TREATMENT OF CHRONIC GASTRIC ULCER.

BY E. T. TATLOW, M.D., B.A., B.CH. DUB.

JEJUNOSTOMY is an operation which is comparatively rarely performed. By the majority it has usually been regarded as a suitable procedure to be adopted for those cases of malignant disease of the stomach where—owing to the extensive infiltration of the carcinoma or its situation—gastro-enterostomy or even gastrostomy is impossible; cicatrical contraction after caustic poisoning being another indication. Mikulicz, a decade back, advocated jejunostomy in combination with gastro-enterostomy, but the procedure is seldom adopted now in England. Witzel and Reetkowsky suggested gastrostomy in combination with posterior gastro-enterostomy for cases in which there was excessive hæmorrhage from an ulcer. Witzel passed a catheter through an opening in the anterior wall of the stomach and thence through the gastro-jejunostomy anastomosis into the jejunum.

In this paper I report on two particular cases showing a fresh usage for jejunostomy. There are, as everyone knows, certain cases of chronic gastric ulcer where, owing to extensive firm adhesions between the posterior surface of the stomach and the pancreas, the ideal procedure—namely, excision—cannot be performed. In these cases gastro-enterostomy is the routine treatment, usually the modified Roux operation in Y, owing to the impossibility of getting at the posterior surface of the stomach. Experience teaches that these very large chronic ulcers, surrounded often by a mass of inflammatory tissue, do not in every case heal after an anastomosis has been made. They appear to

need a more complete rest than a mere gastro-enterostomy offers them. It is for cases such as these that jejunostomy, combined with the modified Roux gastro-enterostomy, is suggested.

Moynihan has performed the combined operation in five instances. In two cases he performed the anterior gastro-jejunostomy in Y and the jejunostomy at the one operation whilst in the two cases at which I assisted the jejunostomy was a secondary operation following on anterior anastomosis. The following are the notes of the two latter cases :—

CASE 1.—The patient, a female, aged 60, had an anterior gastro-enterostomy in Y performed two years ago. At the operation a large circular ulcer was found on the posterior surface of the stomach near the greater curvature, adherent posteriorly to the pancreas. For some three months after operation the pain disappeared. The woman was readmitted to hospital in the middle of March, 1912, complaining of continuous pain, worse immediately after food. She lived on milk and "slops," vomited frequently, and starved herself for four or five days at a time; she was losing weight rapidly. At the operation in March the previous anastomosis was found to be patent, whilst the ulcer was as large as at the original operation. Jejunostomy was performed, the jejunum being opened at a point about two inches above the fork of the Y anastomosis in that portion of bowel coming from the duodeno-jejunal flexure, the catheter being retained in position by the method described below. So far the results of this operation have been highly satisfactory. For six months the woman fed herself through her jejunal tube;

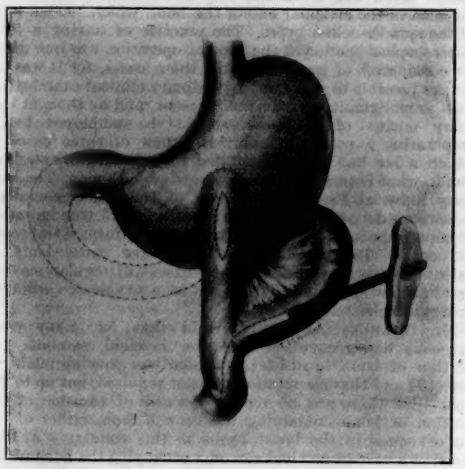

Diagram showing anterior gastro-enterostomy in Y (modified Roux's operation), combined with jejunostomy into the proximal limb of the jejunum (Moynihan's method), for ulceration on the lesser curvature of the stomach too extensive to allow of excision.

she enjoyed complete freedom from pain, and has put on weight. For the past two months she has been gradually resuming feeding by the mouth.

CASE 2.—The patient, a female aged 58, had an anterior gastro-enterostomy in Y performed three years ago. At this operation a large gastric ulcer was found on the posterior surface of the stomach, bound firmly down to the liver and pancreas. For 12 months after this her digestion improved, but later her symptoms returned. Twenty weeks before her readmission to hospital in Leeds she was operated upon elsewhere for a subacute perforation. She came back to the infirmary on Sept. 16th, 1912. Her gastric pain was almost constant and very severe in character and she vomited almost daily. In this case also at the secondary (or rather the tertiary) operation the anastomosis was found to be patent and a jejunostomy was performed.

The following are the exact steps of the procedure (see Figure). The stomach is clamped as in the ordinary operation, a loop of 18 inches of jejunum is then picked up, and an anterior vertical anastomosis performed. The proximal loop of jejunum is then divided near the anastomosis and implanted into the position of the jejunum leaving the gastro-enterostomy, the distal cut end near the anastomosis being first closed, thus completing the modified anterior gastro-enterostomy in Y. The loop of jejunum coming from the duodeno-jejunal flexure to form one limb of the Y is now taken, and at a point two or three inches above the Y, on the side of bowel remote from the mesentery, a small longitudinal incision is made into the lumen of the gut, and a No. 14 rubber catheter is introduced. This is fixed in position by a 000,000 catgut suture, taking in all the coats of the bowel and the catheter, which is then passed well down into the jejunum beyond the anastomosis. Then a series of interrupted Pagenstecher sutures are used so as to enfold the catheter in a trough of jejunum as in a Witzel gastrostomy, care being taken not to stenose the anastomosis. The line of suture is then fixed to the anterior abdominal wall by a single stitch at each end, and the abdominal wound is closed tightly round the catheter, which projects about 5 or 6 inches.

I am indebted to Sir Berkeley Moynihan for kindly allowing me to publish the notes of these cases.

General Infirmary, Leeds.

Medical Societies.

ROYAL SOCIETY OF MEDICINE.

SURGICAL SECTION.

Discussion on Sarcomata and Myelomata of the Long Bones.

THE meeting of this section, adjourned from Nov. 12th, was continued on Nov. 19th, Mr. G. H. MAKINS, the President, being in the cdair.

Mr. G. E. GASK discussed the subject from the point of view of prognosis. He said that in order to endeavour to come to some conclusion as to the prognosis and results of treatment of sarcoma of the long bones he had traced as accurately as possible the after-history of all the cases occurring at St. Bartholomew's Hospital during the period of ten years, 1902 to 1911 inclusive. Along with these he had placed for comparison figures taken from Sir Henry Butlin's book, "The Operative Surgery of Malignant Disease." The tables were started with the idea of dividing the cases into the groups endosteal sarcomata and periosteal sarcomata, according to their macroscopic appearance. He soon found this unsatisfactory, because it was often impossible, either from reference to the notes or to the museum specimen, to say whether the disease started within the bone or from the periosteum, or from the sub-periosteal tissue. Recourse was had therefore to the microscopical examination, and the cases had been arranged in two groups: (1) those cases showing under the microscope the appearance of what is commonly termed myeloid sarcoma or myeloma; (2) all the other forms of sarcoma, whether round, spindle-celled, or mixed with cartilage and bone. With regard to the mortality due to operation, the most striking effect of comparison with Butlin's figures was the reduction in the mortality due to operation, none of the cases recorded having died as the result. An attempt was made to ascertain whether removal of the lymphatic glands had a favourable influence on the prognosis. It was found that the records were not complete enough to make any definite statement on this point. It was noticed, however, that in some cases there was evidence that the disease had infected the glands. A history of injury previous to the recognition of the sarcoma was found in 13 out of the 61 cases. Almost invariably the history was a vague one, and it seemed very doubtful if any accurate deduction could be drawn. For some years he had had the impression that a sarcoma of bone containing cartilage was less malignant than any other form of sarcoma excepting "myeloid sarcoma." Out of the 61 cases the microscopical examination showed 4 cases which had a considerable admixture of cartilage cells. The numbers were too small to draw conclusions from, but, as far as they went, pointed to a smaller degree of malignancy. He came to the following conclusions: 1. The immediate risk to life from operation was small. 2. The prognosis in the case of myeloid sarcoma was good, particularly after amputation.

3. In all other cases of sarcoma the results were still horribly bad. The prognosis could only be made on a microscopical examination, and an attempt should be made to improve our results by making an earlier diagnosis and removing the disease freely, together with the lymphatic glands.

Mr. ARCHIBALD D. REID said that the value of the X ray examination in sarcomata and myelomata of the long bones was naturally in direct ratio to the duration of the condition. It was exceptional that the symptoms were sufficient to call for examination in the very early stages, and consequently the majority of the cases seen showed abnormalities of a more or less definite description in the X ray plate. It was with these abnormalities that he had to deal, and he proposed briefly to give the details of these appearances. Periosteal sarcoma (non-ossifying type) only showed alteration in the bone of an eroding type, no new bone being laid down. This appearance was not diagnostic in itself because other conditions could simulate it. Periosteal sarcoma (ossifying type) in the early stage generally started from a limited area of the bone, and even in the very early stages, in a good radiogram the peculiar arrangement of the growth could be detected. The characteristic feature was the spicular arrangement of the periosteal growth, which was at right angles to the shaft. This condition was practically pathognomonic. When the disease had progressed further the growth might completely surround the bone and very dense masses might be seen, which were still more or less arranged radiating from the shaft. This periosteal arrangement tended to spread along the bone. The shaft could generally be traced through the tumour, apparently unaffected up to a fairly advanced stage of the disease; and even when the new bone completely surrounded the shaft and very dense masses of bone had formed, its continuity could be made out. The most characteristic feature of myeloma in the early stage was the fine trabeculation of the affected area, giving the impression that the tumour was divided up into loculi. This was due to irregularities in the arrangement of the remains of the compact bone surrounding the tumour, and could be well seen in a stereoscopic radiogram. The situation of the tumours at the ends of the bones had been dealt with from the clinical aspect. The X ray examination confirmed this and also the non-occurrence of extension through the cartilages. The circumscribed and more or less globular expansion of the bone was, of course, a marked feature in the majority of cases. Ultimately the bony shell got thinned and gave way, and the soft parts then became infected. In round-celled and spindle-celled sarcoma the main feature was the extreme destruction of bone and the lack of expansion. The shaft above and below the tumour appeared absolutely normal right up to the defect. Periosteal sarcoma (non-ossifying) might be mistaken for secondary carcinoma of bone, where the primary lesion had evaded notice. There was practically no difficulty in the diagnosis of periosteal sarcoma of the ossifying type. The arrangement of the new bone was typical. The differential diagnosis of myeloma was extremely difficult, and although the combination of the clinical and X ray appearances often made it possible, there were a large number of cases in which the X rays failed to be of any assistance. This was more particularly the case where the diagnosis lay between myeloma and benign cyst. Bloodgood in his paper on Giant Cell Sarcoma of Bone, in the August, 1912, number of the *Annals of Surgery*, said: "I would caution against the surgeon making a positive diagnosis of either a bone cyst or a giant cell sarcoma. The more X rays I see, the less confidence have I in my ability to make a differential diagnosis, except in the later stages." This, Mr. Reid thought, summed up the situation. The only points of difference that appeared to be of any value were: 1. The fusiform expansion of the benign cyst, whereas the myeloma was more globular. 2. The position in the bone of the benign cyst, which did not extend to the end of the diaphysis. 3. Fracture was generally the first symptom that called for an X ray examination of benign cyst. With regard to the differential diagnosis generally of myelomata the X ray aided in demonstrating the absence of periostitis which assisted in excluding inflammatory, tuberculous, and specific lesions, but when the diagnosis between the various cystic lesions was required its value was very limited.

Mr. ERNEST SHAW said that, with the exception of the myeloid sarcoma, all the forms of primary sarcoma of the long bones were highly malignant, in that they recurred after removal, invaded surrounding tissues, and reproduced themselves in neighbouring lymphatic glands and distant organs. Although one spoke of periosteal growths in contradistinction to endosteal growths, it was nearly always found that the former grew into the medulla as well as outwards. They sometimes extended a considerable distance along the inside of the shaft—a point of importance to remember when considering the scope of the operation for their removal. In the periosteal tumours the cells grew through and completely destroyed the compact layer of the shaft, and on section it was usual to find the remains of the latter running through the tumour and in its normal position. This was in marked contrast to what happened in the endosteal variety, for in them the compact tissue was expanded to form a thin layer over the tumour, and the thick shaft ended abruptly at its margin. In his experience the mix-celled variety of periosteal sarcoma was the most common. Endosteal sarcomas were usually myeloid in type. They were practically innocent tumours. He had never seen a case which recurred, nor had he seen secondary involvement of glands or other organs. He found it a common occurrence to see multinucleated cells in small numbers in the periosteal variety of growths, but they should be distinguished clearly from true myeloid sarcomas, in which giant cells occurred abundantly. The endosteal sarcomas of the shaft in most of the few cases he had seen had been of the round or spindle-celled form, but he could only recall one true endosteal sarcoma in the articular end of the bone which proved to be of the spindle-celled type. The practice of having a fresh microscopical section at the time of operation was one which he considered of great value in these cases, for it was not always possible to make out by ordinary clinical examination that a malignant tumour was present, and he thought that every means of diagnosis should be employed before amputating a patient's limb. He knew of three cases in which a leg had been amputated for inflammatory swelling due to what is termed "quiet necrosis" of bone. The hard bony material found in sarcomas of bone was generally a calcareous deposit in the fibrous matrix, not a true imitation of bone trabeculæ. In a few tumours well-formed trabeculæ did occur. In macerated specimens the gross bony or calcareous tissue was seen in most cases as irregular masses, and in a few specimens only was it seen as spicules arranged at right angles to the shaft.

Mr. CHARLES A. MORTON said that for many years surgeons had recognised that for myeloid sarcoma the portion of bone in which the tumour was growing might be resected and that amputation was not required, but up to the year 1898 there was no record of a case of excision of the portion of bone containing the growth from either of the major bones in the lower limbs in this country. At that time, in a case of myeloid sarcoma occupying the head of the tibia, he resected three inches of the upper end of the tibia and a third of an inch of the lower end of the femur, and then screwed the bones together. Although there was a little more than three inches of shortening, yet with the aid of an extra thick sole the patient had been able to work hard ever since, and there had been no recurrence now 14 years later. In cases in which it might be necessary to excise a greater length of bone it might be necessary to use a bone-graft, but unless the shortening would be very great indeed it was better to secure firm bony union between the tibia and femur by direct union of one bone with the other. All recognised that periosteal sarcoma was a most deadly disease, and most surgeons believed that the only way to deal with it was by amputation, whilst some believed that we must not amputate through the affected bone, even though at a considerable distance from the growth. Sir Henry Butlin had said in the last edition of his book on the surgery of malignant disease (1900) that "everything leads to the belief that in the present state of our diagnosis of sub-periosteal sarcoma of the femur amputation of the limb holds out really no prospect of permanent success," and he (Sir Henry Butlin) had also shown that in two-thirds of the cases of periosteal sarcoma of the leg bones the patient died with metastases after amputation, though local recurrence was not often present. In order to show that it was right treatment to excise the portion of the bone in which a periosteal sarcoma was growing and save the

limb, all that was necessary was to show that the results of the adoption of this line of treatment were no worse than after amputation, for it was obviously a great advantage to save the limb. Although in this country there had been very few cases in which a periosteal sarcoma had been excised, yet this had been done in a good many cases by continental surgeons, and Professor Goldmann had told us that he had excised periosteal sarcomas with a result which would have been surprisingly successful after amputation. He (Mr. Morton) felt strongly that in the case of either of the main bones of the lower limb it was only if one got the case quite early that the possibility of resection should be considered, for it was necessary to resect a considerable length of what appeared to be healthy bone above and below the growth, or if it involved the articular end, one must take away with it the neighbouring joint, for the growth might extend into its ligaments. He wished to emphasise the need of removing a considerable margin of healthy bone with the growth. When the surgeon resected the portion of bone in which the tumour was growing, he should cut it open longitudinally, not only in central sarcoma, but even in periosteal sarcoma, to see that he was as far away from the growth in the interior as on the surface, for even a periosteal sarcoma might have advanced further in the interior of the shaft than was apparent on the surface. He thought all muscles and tendons attached to the affected part should be cut as far from their attachments as possible. In favour of resection in some cases of periosteal sarcoma was the fact that the tumour was often well differentiated towards the surrounding tissues. If on exploration he found the growth infiltrating the surrounding muscles, he would regard such a case as unsuitable for excision. After excision of sarcoma of muscle recurrence was almost invariable, and yet excision of such growths had been the accepted practice, and was advised in some of the text-books of surgery rather than amputation of the limb.

Mr. C. R. C. LYSTER exhibited a radiogram of Hydatid Disease of Bone as a comparison to those of new growth.

Dr. W. IRONSIDE BRUCE showed some radiograms of typical examples of Tumours of Bones with the object of drawing attention to the practical value of X ray examination in differential diagnosis. The first two were of endosteal sarcomata, one of the upper end of the humerus, the other involving the head of the radius. In these tumours the normal uniform dark shadows cast by bone were replaced by shadows which were not uniform, lighter areas which corresponded with the soft parts of the tumour being seen at irregular intervals. The encroachment of the sarcomata on normal bone produced a characteristic appearance, for no separation or thickening of the periosteum was observable, and where bone had been replaced by the more translucent material of the tumour no abrupt line of demarcation existed. Compact bone being more resistant than cancellous bone, the more translucent material of the tumour was surrounded by the opaque compact bone, an appearance which was always present in endosteal sarcoma. The next three radiograms were examples of periosteal sarcomata of the upper end of the humerus, upper end of femur, and lower end of femur respectively. The appearance of these tumours affecting the outer surface of bone differed from that of the former variety and was in accordance with their more rapid growth and their origin. The bone at the site of the growth was replaced by more translucent material and appeared eroded and irregular in outline. As a whole the affected bone was irregular in structure and diminished in density and no evidence of periostitis could be detected. The radiograms, at first sight, gave the impression of want of detail and poor quality, an appearance which was characteristic. When ossification occurred in such tumours the radiate arrangement of this process was most useful in deciding their nature, and spontaneous fracture when present was a most important observation. He also exhibited a series of radiograms of conditions which might be confused with new growth of bone, including one which he believed to be ossified scorbutic subperiosteal hæmorrhage.

Mr. S. G. SCOTT said that the diagnosis of these tumours having been made, the question of the degree of malignancy was of vital importance. Although myelomata were usually considered slow-growing, they might occasionally be just as rapid in growth and fatal as the true endosteal sarcomata. His impression was that the ratio between the rate of bone destruction and repair, as was evidenced in the skiagram, was an important point in determining the probable degree of malignancy. The more rapid the growth, the greater was the destruction and the less the repair. A true endosteal sarcoma was usually rapid in growth, hence the destruction of the bone was rapid, and little evidence of repair was seen in the skiagrams. On the other hand, a myeloma was slower in growth, hence destruction and repair were more evenly balanced. Repair was shown by the presence of bony trabeculæ. The more marked and dense the shadows of these trabeculæ in the skiagram the slower the growth. These trabeculæ were caused by the varying thickness of the bone-shell; they did not traverse the cavity as one might be led to suppose from a single radiogram. This could be demonstrated if viewed stereoscopically. If the bone-shell gave way and the disease invaded the soft tissues it usually took on a more rapid growth, although the trabeculæ might for a time remain as well marked as before. This ratio between destruction and repair was to a certain extent true of the ossifying periosteal sarcomata. Here, however, the rate of repair was estimated from the appearance in the skiagram of the periosteal striations or spicules which, if present, were diagnostic of this disease. They were at right angles to the surface of the bone or radial from the tumour, and not parallel as in simple periostitis. They were also seen when a slow-growing myeloma broke through the bone-shell and invaded the surrounding tissues. The so-called non-ossifying periosteal sarcoma might only be evidenced in the skiagram by erosion of the surface of the bone and no periosteal striations were seen. He showed skiagrams illustrating these various points.

Dr. G. HARRISON ORTON said that the question of treatment by X rays had not been considered in the discussion. There was no doubt that they could have a marked effect on sarcoma cells and might be used with some advantage after amputation or local removal of the growth.

The PRESIDENT reviewed some of the chief points which had been elicited by the discussion. He quoted two examples of metastases in myeloid sarcoma. It could reasonably be supposed that such tumours were related to sarcomata and that it would be better not to call them myelomata, a name which suggested that they were different forms of growth and placed them with tumours with which they were little related. A question which had not arisen was whether sarcomata ever developed at the site of a recent fracture. A specimen was on exhibition which seemed to suggest that in that case the fracture appeared first. He thought that the danger of cutting into a growth for purposes of diagnosis was a real one, and himself was always prepared in such cases to complete the operation within the next 24 hours. He agreed that it was necessary to incise to the depths of the growth if a microscopical examination was to be made. It was not always possible to tell either by the shape or X ray appearances between a periosteal sarcoma and a myeloid growth. One could not but look with favour on the view that the object of treatment might be fulfilled without amputation.

OBSTETRICAL AND GYNÆCOLOGICAL SECTION.

Eclampsia treated by Cæsarean Section.—Le Fort's Operation for Prolapse.

A MEETING of this section was held on Nov. 7th, Dr. AMAND ROUTH, the President, being in the chair.

Dr. R. DRUMMOND MAXWELL brought forward a case of Eclampsia treated by Cæsarean Section. The patient was a primigravida, aged 19, admitted to Queen Charlotte's Hospital on July 23rd, 1912, at 9.35 A.M. Three fits had occurred before admission. She was having weak pains every 20 minutes, and the fœtal heart sounds were regular and strong. The urine contained only a trace of albumin, there was marked œdema of the legs, and the blood pressure was 165 mm. The cervix was rigid and only admitted the tip of the index finger. Two pints of saline were injected per rectum. By 6.30 P.M. 13 fits in all had occurred, the labour had made no progress, and the patient had been comatose since 3 P.M. Cæsarean section was then decided upon, and performed as soon as possible. Ether was the anæsthetic employed; the uterine incision was allowed to bleed freely; and two pints of normal saline containing 10 per cent. of glucose were poured into the peritoneal cavity after the uterus had been sewn up. No subsequent fits occurred, and both mother and

child did well. The following indications were formulated for Cæsarean section in eclampsia: (1) Fits occurring in a primigravida; (2) onset of fits with no signs of the start of labour; (3) a rapid succession of fits where consciousness is not regained and coma is deepening; (4) failure of advance of cervical dilatation after several hours of an expectant attitude with the prospect of many hours' delay before the second stage is reached; (5) absence of any definite signs of improvement after eliminative treatment has been carried out for several hours. The presence of all these indications constitutes a case of such gravity as to render the operation justifiable.

Mr. J. M. WYATT drew attention to Le Fort's Operation for Prolapse, which he thought of great value in cases of procidentia in old people where any form of pessary fails to keep the womb in position, and where laparotomy for fixation is contra-indicated.

Dr. H. RUSSELL ANDREWS introduced: (1) A case of Simultaneous Uterine and Extra-uterine Pregnancy, in which "internal wandering" of the ovum seems to have occurred; and (2) a small Ovarian Teratoma, containing, among other structures, brain and well-formed intestine.

Dr. C. HUBERT ROBERTS described a case of Urgent Cæsarean Section in Contracted Pelvis, with prolapse of the cord. The mother and child recovered.

UNITED SERVICES MEDICAL SOCIETY.

Crux of the Medical Problem in War.

A MEETING of this society was held at the Royal Army Medical College on Nov. 13th, Fleet-Surgeon P. W. BASSETT-SMITH, C.B., R.N., being in the chair.

A paper was read by Colonel BRUCE M. SKINNER, M.V.O., A.M.S., on the Crux of the Medical Problem in War. After pointing out that the accumulation of men in camps or bivouacs has invariably been followed by disease, usually in proportions amounting to an epidemic, and that even under conditions of modern army sanitation this must still be anticipated as a problem likely to accentuate the difficulties of dealing with periodic accessions of large numbers of wounded, Colonel Skinner showed that the mobility of an army is influenced by the following factors: the amount of transport requisite, the amount of food procurable, the amount of sickness amongst the troops, and the necessity of protecting both supplies and also medical units occupied by the helpless. Any means calculated to reduce these factors making for immobility will obviously increase the mobility of a force. For this reason it is necessary for the army doctor to study war in order that he may readily grasp the designs of the field commander and be able to exercise a trained imagination in foreseeing and providing for any military situations that may arise. Failure to exercise this trained imagination has led, and will always lead, to failure in medical arrangements, even where material is ample. For instance, in Indian warfare a medical unit cannot be left unguarded; and if such a unit in the front line, instead of evacuating its sick and wounded, becomes an extemporised hospital, the force is crippled by the necessity of furnishing troops for its protection and perhaps so far hampered as to be unable to give effect to the wishes of its commander. Consequently we realise the fundamental principle that field medical units must never become clogged with sick and wounded—a condition that can only be avoided by free evacuation towards the base. Again, the fewer sick and wounded retained at the front, the more supplies are available for the healthy, and the nearer the base the hospital is situated, the shorter the distance over which supplies of equipment, personnel, appliances, and food for hospital use have to be transported, and the greater the technical efficiency of such units. The true hospitals, then, must be on the lines of communication, and the advanced medical units should consist mainly of ambulance transport. Colonel Skinner instanced Lord Roberts's march from Kabul to Kandahar as illustrating the case of a force obliged to carry all its sick and wounded with it, since no line of communication could be used for evacuation. To illustrate the successful evacuation of the sick and wounded of a column by means of its lines of communication, the speaker cited an instance from the South African War, where a force of 5000 men under General Sir A. Hunter moved north from Thabanchu to operate north of Wynberg in September, 1900. Here Thabanchu, connected with Bloemfontein by ambulance posts at Sanna's Post and Boschman's Kop, was used as an evacuating station for the sick during the concentration and for part of the march to Wynberg, this latter point being used for the same purpose as soon as the force reached its vicinity. Wynberg, being on a railway, was able to dispose of the sick and wounded of the column by means of an ambulance train, and thus to keep its hospital accommodation free from congestion and adequate for the needs of the force. A field hospital was left by the column at a point in the neighbourhood of Wynberg, where it formed a connecting link between the fighting troops and their advanced base. The whole episode furnished a good example of adequate coöperation between the inspector-general of communications, represented by his deputy director of medical services on the one hand, and the officer commanding the fighting troops, as represented by his assistant director of medical services on the other.

Turning to history of less recent date, Colonel Skinner briefly described the battle of Blenheim with special reference to the medical situation, and showed how, in the absence of a specialised medical administration, the work of disposing of the enormous aggregation of wounded, both in his own army and abandoned by the enemy, completely occupied Marlborough himself for four days after the victory. Applying the situation and the locality to a force organised on modern lines, Colonel Skinner indicated the main points that would arise for solution and the means by which the problems would be solved. Placing the action in England and assuming that a mixed force of regular and territorial troops had just fought a successful action against an invader, the very important rôle of voluntary aid societies in supplementing the medical units and relieving the force of its wounded was pointed out, and Colonel Skinner made the important suggestion that Red Cross detachments should be instructed in the method of registering the names, &c., of the sick and wounded entrusted to their care, so that reliable records would be available as in medical units. He showed that, in a friendly country, there would probably be wide lateral dispersion of the wounded, the Red Cross detachment of each small community, working in collaboration with the deputy director of medical services of the lines of communication, providing for the needs of as many invalids as it could accommodate and thus relieving pressure not only on the fighting troops but also on the lines of communication. Further examples were quoted from the South African war, the Bohemian campaign of 1866, and the Russo-Japanese war, and conclusions were drawn which may be summed up as follows: 1. A force without sufficient medical transport loses mobility and requires additional A.S.C. transport. 2. A force with adequate medical transport gains in mobility and needs less A.S.C. transport. 3. The necessary evacuating transport must take the form of a medical unit—such as the "Ambulance Column" now proposed for the Indian army—because in the stress of war we cannot rely on any other branch of the army to supply our needs, nor upon any improvised transport. The sphere of operations for this unit is between the field ambulances and the line of communications, working under the deputy-director of medical services of the latter. 4. The organisation of such a system of evacuation forms the crux of the medical problem in war.

A highly interesting discussion ensued in which the following took part: Surgeon-General W. BABTIE, V.C., C.B., C.M.G., Colonel W. G. A. BEDFORD, C.M.G., A.M.S., Lieutenant-Colonel C. H. BURTCHAELL, R.A.M.C., Major E. B. WAGGETT, R.A.M.C.(T.), and Dr. F. M. SANDWITH.

MANCHESTER MEDICAL SOCIETY.

Gastric Ulcer.

A MEETING of this society was held on Nov. 6th, Dr. C. C. HEYWOOD being in the chair.

Dr. F. CRAVEN MOORE, in opening a discussion on this subject, said that with the advent of the surgeon in gastric disorders grave doubt had been thrown on the significance of those manifestations on which it had been customary to base a diagnosis of ulcer of the stomach. It had been shown that hæmorrhage, even profuse hæmatemesis, the crowning sign of gastric ulcer, might obtain with nothing

more than a few small erosions or merely a diffuse oozing of blood from the mucous surface. In the so-called acute ulcer of the stomach diagnosis was to some extent a problem of definition. The difficulty arose where gastric symptoms—pain, acidity, vomiting—almost certainly of reflex origin, were complicated at some time by a gastric hæmorrhage. He believed the occurrence of this latter indicated a gastric lesion—erosion of the solitary follicles, which "erosion" may proceed to a "typical" acute ulcer. Erosions were probably a frequent occurrence in reflex dyspepsias, but they became manifest only by the fortuitous occurrence of hæmorrhage, perforation, or by progressive necrosis until the subserous coat was involved when local sensory manifestations indicated the presence of a gastric lesion. For the recognition of a "chronic" ulcer of the stomach—a progressive erosion to which incomplete reparative inflammatory changes had been superadded—the sensory manifestations afforded the most assured basis. Subjective pain, due, he believed, to local (protective) muscular spasm, was earlier but curiously irregular in its time incidence after food, as contrasted with that of duodenal ulcer or of reflex dyspepsia; its radiation through to the back was characteristic; it was frequently, if not invariably, associated with persistent local epigastric tenderness, some muscular rigidity, and with an area of tenderness on deep pressure to the left of the lower dorsal spines, and less commonly with an epigastric cutaneous hyperæsthesia. In ulcer of the lesser curvature the pain might in time incidence closely simulate that of duodenal ulcer. Vomiting was an invariable feature, but, unless of the type associated with pyloric stenosis, it was irregular in occurrence and time of incidence after food, commonly occurring with the height of the pain, which was relieved thereby. An occasional and characteristic feature of chronic gastric ulcer was alkaline pyrosis. Hæmorrhage, manifest or occult, was an invariable manifestation, but not continuous. Gastric secretion was in most cases increased, the excess generally being greater the nearer the lesion to the pylorus. The appetite was as a rule good, though marked sitophobia might lead patients to giving a wrong impression. Wasting, sometimes extreme, was almost always present, but liable to characteristic fluctuations. It was explicable by starvation and particularly water starvation. The course of a case of chronic gastric ulcer seemed to differ from duodenal ulcer in that during the intervals of well-being there was not the same complete absence of symptoms.

Mr. A. H. BURGESS remarked that not infrequently cases presenting all the classical symptoms of gastric ulcer were found on operation to be free from any stomach lesion, the disease being in the gall-bladder, pancreas, appendix, or other viscus. The pain in these cases was of reflex origin, referred in lesions of the alimentary canal as far downwards as the appendix to the epigastrium, in lesions of the colon or pelvic viscera to the hypogastrium. He had not found the gastroscope of any material help in diagnosis. The radiographic screen after bismuth meals in expert hands gave the most valuable assistance. The surgeon, when operating on the cases, should preserve an open mind as to the procedure to be adopted until the lesion was disclosed; every operation should be in the first instance "exploratory," and only when an actual ulcer was demonstrated should any operation be performed upon the stomach; "symptomatic" gastro-enterostomy merely courted disaster. The finding of one definite lesion should not preclude a systematic examination of the other viscera if the patient's condition allowed, since ulcers of the stomach or duodenum were not infrequently associated with gall-stones or chronic appendicitis.

Mr. A. E. BARCLAY insisted that the diagnosis of gastric conditions must be made by combining all the points noted in the X ray examination with a consideration of the clinical picture of the case. He held strongly that gastric pain was solely the result of spasmodic contraction. In a recent case of œsophageal obstruction in a girl who had vomited blood no obstruction was noted and no pain was experienced until dry bread was swallowed. This evidently irritated a small ulcer of the œsophagus and set up a spasm of such severity that peristaltic waves were seen sweeping down and compressing the food. The pain of a gastric ulcer was exactly similar to this and depended solely on physical causes, as suggested by Hertz. Ulcers of the stomach were divided, radiographically, into three classes: 1. Ulcers of the fundus, which were exceedingly rare, gave rise to spasmodic obstruction at the cardiac orifice. 2. Ulcers of the body of the stomach gave spasmodic contraction, resembling and often indistinguishable from the hour-glass contractions. He maintained that the severity of the spasm (present in all active ulcers) depended on the irritability of the ulcer, not on the size. 3. Ulcers of the pylorus were difficult to recognise in the early stages, but gave rise to a very free and rapid secretion of gastric juice which gave off large quantities of carbon dioxide when the patient took a dose of sodium bicarbonate. The stomach was more or less normal in shape and size. Very active peristalsis was also noted, but the rate of emptying was uncertain in the early stages. In the latter stages obstruction resulted and the retention of food was easily noted. Two distinct types of stomach were seen: a large atonic sac extending even into the pelvis and a rarer type of normal length but very broad owing to the distension with food, peristalsis being usually absent.

Dr. E. M. BROCKBANK urged the importance of careful clinical observation with CO_2 gas, test meals, and X rays as aids to diagnosing between gastric catarrh, appendicular and gall-bladder dyspepsias, neuroses, ulcers, and malignant disease. He also spoke of the value as treatment and an aid to diagnosis of large doses of bismuth given at night with no food allowed from 6 P.M. to 8 A.M. The patients felt no discomfort from it and it cured neuroses and many cases of ulcer.

Dr. E. B. LEECH considered that in many cases of chronic dyspepsia an absolute diagnosis for or against gastric ulcer was impossible. X ray examination should be resorted to in all difficult cases. Exploratory laparotomy should be considered by the physician.

ROYAL ACADEMY OF MEDICINE IN IRELAND.

SECTION OF MEDICINE.

"Vitalism" in Practical Medicine.

A MEETING of this section was held on Nov. 1st, Dr. J. O'CARROLL, the President, being in the chair.

The PRESIDENT delivered an opening address on the above subject. Having given a brief review of the work of the section during the 30 years of its existence, he addressed himself to the view of the nature of life put forward by Professor Schäfer in his recent address to the British Association for the Advancement of Science. He held that the physico-chemical explanation of life was quite unhelpful to the physician; that, however possible it might be that life might arise *de novo* from unorganised matter, it was nevertheless impossible to predicate that only the same forces, physical or chemical, operated in a living as in a dead thing. In life new force or forces came into existence, for which no convenient name other than "vital" force had been devised. That force showed its existence in many ways, but chiefly in its capacity of resistance to extinction. Vital resistance begot an adaptability to circumstances, a division of function among the parts of a compound organism for better maintenance and defence of the whole individual, and finally a power of compromise between contending or hostile organisms of similar or different kinds. That division of labour and power of compromise implied a certain social order which seemed an embryonic form of social ethics. The rise of an ethical or moral sense was a stumbling block in the evolutionary theory, running counter as it did to the doctrine of the survival of the fittest. But in a compound organism the cells of highest function were commonly the most vulnerable and the least capable of renewal; while the cells of lowest function usually made the longest defence, were most capable of proliferation, and were the last to die. The interdependence of high and low class cells gave each an interest in the survival of the others. In a community of similar organisms, within certain limits, the same law applied, and when it was forgotten the community suffered. Thus arose a communal morality, the ethics of mutual protection. If this view of life held good the rise of the ethical sense was a natural development and not a violent break in the history of life. Unless the terms "chemistry" and "physics" were to be extended quite beyond any accurate

meaning they could not include ethics among their connotations. If they did they would have as little value as Professor Schäfer ascribed to "vitalism." In the practice of medicine the "vital" conception of disease was all-important. It taught how to separate symptoms which were essentially morbid from those which indicated resistive or protective processes, and thus led to the adoption of treatment which should help and not obstruct the vital processes making for survival of the individual.

NOTTINGHAM MEDICO-CHIRURGICAL SOCIETY.—A meeting of this society was held on Nov. 6th, Mr. W. G. Laws, the President, being in the chair.—In his presidential address, entitled "Man in the Making," Mr. Laws cited instances to show how deep and persistent were the traces of the race history in the structure of the individual, and then proceeded to outline what was known of the more important of the races of prehistoric man, their physical characteristics, and the conditions under which they lived, illustrating his remarks by diagrams and specimens of stone implements of various periods.

Reviews and Notices of Books.

Life of Sir William Tennant Gairdner, K.C.B., M.D., LL.D., F.R.S. By GEORGE ALEXANDER GIBSON, M.D. Edin. Glasgow: James Maclehose and Sons. 1912. Pp. 817. Price 10*s.* 6*d.* net.

IN the year 1907 Sir William Gairdner died. In him his immediate circle lost a beloved friend, the University of Glasgow her late professor of medicine, and the people of these islands a distinguished physician. From the year 1900 he had suffered from an affection of the heart, the exact nature of which puzzled not only himself, but also those other distinguished physicians who from time to time gave him their counsel and assistance. He wrote a record of the symptoms and course of his illness, and desired that an investigation of the cause should be made after his death. This was carried out by two of his friends, who published a full account of their findings in due course. In the few years that have elapsed since his decease much progress has been made in the understanding of the cardiac changes that are responsible for that alteration in frequency and rhythm of the pulse which was such a marked feature in Gairdner's illness. His seizures were of the Adams-Stokes type, and went on to a condition of complete heart blockage, with great weakness but little suffering.

It is, however, not of the pathological changes of his bodily heart that we shall write, but of that other heart of his which endeared him to all his circle, and which contributed in no less measure than his scientific knowledge and industry did to the success and distinction which he obtained. In all walks of life some men attain their objects with ease, whilst others no less gifted seem doomed to fight their way at every step, encountering all the difficulties of prejudice, bitterness, even hate, their honours at last conceded with but a grudging hand. All men rejoiced at Gairdner's successes, because of his high character, his conciliatory spirit, and warm heart. No one who reads Sir William Gairdner's letters to his sons on family matters, particularly in reference to the untimely deaths of his daughter Löis and his son Hugh, can fail to be impressed with the loving tenderness which breathes through every line. Not in the domestic circle alone, but in every relation of life, his noble and sweet disposition were displayed. It is said of him that one of the few men whom he ever denounced was a professor who, after giving for an hour and a half, on two consecutive days, a full description to his class of every symptom exhibited by an unfortunate patient and a diagnosis of the malignant affection from which he suffered, ignoring all questions of treatment, concluded: "Meine Herren, die Prognose ist ganz schlecht." The honours that fell to Gairdner came unsought. It was characteristic of him that he pushed others forward where he himself was entitled to prominence. He withstood the wishes of the Senate to elect him a member of the University Court and representative of the University on the General Medical Council, and induced his colleagues to appoint Professor Leishman to these positions. His relations to his colleagues were marked by the warmest friendship and the greatest loyalty. This may be said equally of those who were associated with him, both in the discharge of his civic trust and in the performance of his academic duties. Gairdner was a man in whom the highest intellect was combined with the best moral qualities. He exercised in virtue of these gifts a great influence on the medical profession in Scotland, and this in the most beneficial way, by elevating its aims, enlarging its sympathies, and widening its interests; while upon the minds of all who knew him well there has been left the wholesome example of a life devoted to the good of man.

Pellagra: History, Distribution, Diagnosis, Prognosis, Treatment, and Etiology. By STEWART R. ROBERTS, M.D., Associate Professor of the Principles and Practice of Medicine in the Atlanta College, Georgia, U.S. With 89 special engravings and a coloured frontispiece. London: Henry Kimpton. 1912. Pp. 272. Price 12*s.* net.

THIS volume is dedicated to "that long line of physicians and scientists from Casal through Lombroso to Sambon, and those who shall come after them, who have been, and are, and shall be, students of pellagra." It is published at a very appropriate time, when very deep interest has been aroused upon the subject, owing to the reported spread of the malady in the United States, in which country it is estimated that at least 10,000 cases are at present under treatment, besides others not coming under medical observation. The disease, it is stated, has already been reported in 33 out of the 49 States comprised in the Union.

The work presents in an accessible form practically all the information that has been accumulated concerning the malady up to the present time. Professor Roberts divides his material into ten chapters, in which he discusses general considerations regarding pellagra; the history and geographical distribution of the malady (illustrated with maps giving its incidence not only in the United States but also throughout the world); its classification; its effects upon the alimentary tract, the skin, the nervous system, as well as upon other parts of the body; its diagnosis and prognosis; treatment; and, finally, its alleged causes. As to the latter, the author regards the etiology of pellagra as being still shrouded in doubt, although he reduces all the previous theories of its origin to two—viz.: (1) an intoxication associated with maize; or (2) an infection as suggested by Sambon. Both of these views are thoroughly discussed, and the evidence for and against each is carefully set out. The advocates of the corn theory, he says, have had 100 years in which to prove their case, but have not yet succeeded. On the other hand, Sambon's parasitic infection theory is little more than three years old, and is still being investigated, but no sufficient proof has yet been adduced to warrant its entire acceptance by the profession. Until the origin of pellagra is definitely known the wisdom of prophylactic measures must remain in doubt, and the adoption of satisfactory treatment must also be delayed. The author intimates that his book is intended primarily for the student and the practising physician; he adds that it has not been purposely written to support any special theory as to the etiology of the complaint. In his

conclusion he quotes, somewhat hopefully, the words of a European physician who is reported to have said: "Pellagra has appeared in America, and no doubt in America the true cause of the disease will be discovered."

We have every confidence in recommending Professor Roberts's volume to all those who are seeking for precise information respecting pellagra. The book is well written, and throughout the subject is treated in a highly interesting fashion.

Diseases of the Skin and the Eruptive Fevers. By JAY FRANK SCHAMBERG, A.B., M.D., Professor of Dermatology and Infectious Eruptive Diseases in the Philadelphia Polyclinic and College for Graduates in Medicine, &c. Second edition, thoroughly revised and fully illustrated. London and Philadelphia: W. B. Saunders Company. Pp. 573. Price 13*s.* net.

IN this, the second, edition of this work the author has thoroughly revised the text to bring it into accord with present-day knowledge. New chapters have been added on sporotrichosis, on vaccine therapy, and on the use of carbonic acid snow. Special mention may be made of the chapter on grain itch, a disease which was first described by the author in 1901, though the mite causing it was not described till eight years later. The introduction of salvarsan by Ehrlich has naturally necessitated the rewriting of the section on the treatment of syphilis, and an account of the Wassermann reaction has been added. During recent years pellagra has become much more common in the United States, and the author has found it necessary to amplify greatly the account of this disease. More than 20 illustrations have been added. This new edition of Dr. Schamberg's work has been fully brought up to date.

Workmen's Compensation Digest. By DOUGLAS KNOCKER, of the Middle Temple and South-Eastern Circuit, Barrister-at-Law, M.B. Lond., M.R.C.S. Eng., L.R.C.P. Lond., D.P.H. Lond. London, Sydney, and Calcutta: Butterworth and Co. 1912. Pp. 494. Price 15*s.* net.

Mr. Knocker informs us that his "Digest of Workmen's Compensation Cases" contains every case of present utility or authority decided under any of the Workmen's Compensation Acts and Rules in the House of Lords or in the Courts of Appeal of England, Scotland, or Ireland, and we willingly give him credit for the collection of an enormous mass of material, and for presenting it in a compendious and convenient form. His book should be of use to others besides legal practitioners desirous of having readily available brief statements of the various points decided under the Workmen's Compensation Acts.

The text of the Act of 1906 is set out, and under words or phrases which have been the subject of judicial decision are given the cases bearing thereon. Where a case bears upon more than one point it is restated in every place where it is relevant, a plan which somewhat increases the bulk of the book, but is better than a multiplication of references. A novel feature is introduced by the arrangement of the digested cases in one of two parallel columns. Each page is divided by a line down the middle, and a case appears to the right or left of the line, according as it was decided for the employer or the workman. Mr. Knocker suggests that an apology may be needed for this, and we are inclined to agree with him that in principle it is indefensible. Nevertheless, it has a certain convenience, and frequently brings into instructive juxtaposition those cases which are most directly contradictory to one another. Certainly the Workmen's Compensation Acts have produced a crop of decisions of an unusually conflicting nature, characterised by apparent inconsistencies very difficult to reconcile. Many of these will be found among those cases in which the question whether there has been an "accident" within the meaning of the Act has been raised, and in which the alleged "accident" has been something which before the era of workmen's compensation and of bacteriology would have unhesitatingly been described as nothing other than a "disease." Perusal of a group of cases relating to seamen who met with accidents when proceeding from the shore to their ships is positively bewildering, and another group relating to the question of what constitutes submission or refusal to submit to medical examination is almost equally so.

A digest gives often an epitome of a case which to be fully understood must be studied in an ampler form. The somewhat arbitrary arrangement referred to is also liable to the objection, as Mr. Knocker himself suggests, that it forces on to one side or the other of the dividing line cases which cannot be said really to favour either the employer or the workman. Certainly such a decision as that in Carolan *v.* Harrington, where it was held that, in spite of an omission in the regulations, the county court judge has jurisdiction to submit the question as to what was the cause of death to a medical referee, may have been so decided at the instance of a particular employer, but can hardly be said to be in favour of employers generally more than of workmen. Nevertheless the innovation upon which we have commented has a good deal to recommend it, and we regard Mr. Knocker's book as a useful addition to the formidable array of text-books that the Workmen's Compensation Acts have called into being.

Ophthalmic Myology: A Systematic Treatise on the Ocular Muscles. By G. C. SAVAGE, M.D., Professor of Ophthalmology in the Medical Department of the Vanderbilt University, &c. Second edition. With 84 illustrative cuts and 6 plates. Published by the Author, Nashville, Tennessee. Pp. 685.

Dr. Savage's treatise on the ocular muscles might well serve as the text of an essay on the value of authority in matters scientific. He is a revolutionist; he dares to doubt the teaching of him whom he rightly calls "the immortal Helmholtz."

The author puts their differences in a nutshell in the preface. Is the centre of the cornea always the anterior pole of the eye? He says that Helmholtz says "Yes," but surely the bare affirmation does not fully convey Helmholtz's opinions on the point. Himself, he gives an unqualified "No." Is the central point of the macula always the posterior pole of the eye? He says "Yes"; Helmholtz says "No." Do all secondary visual lines cross the visual axis at the nodal point? He says "No"; Helmholtz says "Yes." Do all secondary visual lines cross the visual axis at the centre of retinal curvature—the centre of rotation? He says "Yes"; Helmholtz says "No." Now, the majority of healthily constituted minds have an innate reverence for authority, and such will be inclined *a priori* to back Helmholtz. A minority expend an enormous amount of energy and enthusiasm in tilting against all the dogmas of authority, and we have to thank them for much of the progress which civilisation prides itself upon. It is they who demolish the clay feet of our idols and bring them toppling to the ground. The true scientist belongs to neither camp. In so far as he is a true scientist his whole aim is to sweep away every bias and weigh each particle of evidence like a blindfold Justice.

It has been indicated that this is not the text-book for the embryo ophthalmologist; it is no meat for babes. Yet it is well worthy of the consideration of the learned in these matters. The author's views are put forward cogently and with many ingenious devices to prove his theses. The arguments require knowledge and thought to combat; thus they

stimulate, though in our case at least they do not convince. Much of the practical part of the book—dealing with muscle balance, and so on—is valuable to all, and it is to be regretted that it will probably be wasted to a large extent by being mixed up with controversial matter.

Handbuch der Vergleichenden Physiologie. Herausgegeben von HANS WINTERSTEIN. Vierundzwanzigste Lieferung. Band III.: *Physiologie des Energiewechsels.* Zweite Hälfte. Bogen 29 bis 39. Jena: G. Fischer. 1912. Pp. 457–624. Price 5 marks.

IN this part E. Godlewski, jun., of Cracow, begins his exposition of the Physiology of Reproduction. After a short introduction on the beginning of life on the globe, and a reference to the now almost forgotten speculations of Allen and the later views of Arrhenius, he proceeds to discuss non-sexual reproduction—always dealing first with the phenomena as they occur in plants and afterwards in animals. Non-sexual reproduction is especially well marked in the lower animals and occurs in four types—(1) by division, (2) by budding, (3) by vegetative spore formation, and (4) by winterbuds, gemmules, and statoblasts. Division of bacteria and infusoria is first considered. The factors determining division of infusoria are very fully gone into, and illustrated by reference to acanthocystis, stentor, and paramœcium, very much on the lines pursued by Calkins in his monograph on the protistæ. The recent results of Woodruff, who has devoted much time to the study of the life cycle of paramœcium, are introduced. Next, division in the metazoa is considered. Budding is then dealt with, the most interesting part of the narrative being a consideration of the conditions under which budding, as opposed to ovulation, takes place—for example, in hydra. So far as reproduction by spores is concerned, this is chiefly manifested in the vegetable kingdom, and amongst animals is observed only in the protozoa. The fourth method, by gemmulation, has a certain resemblance to spore formation. Gemmules are formed in sponges, and statoblasts in some of the bryozoa, under certain unfavourable external conditions. A very short account of amitotic and mitotic division of cells is appended. Non-sexual reproduction occupies pp. 457 to 518.

Sexual reproduction and the conditions of activity in the sexual glands are next considered. Dealing with the internal conditions of sexual activity, the age of the individual is in most instances of the greatest importance, sexual activity usually not occurring until a certain age and development are reached, with the subsequent development of secondary sexual characters. In some cases, however, the sexual organs ripen and are active in the embryonic stage of the organism. To this condition the term "progenesis" was applied by Giard, and it is sometimes called "neoteny." The gonads ripen, as it were, too soon. Kammerer was able to produce artificially immature alytes—the obstetrical frog—in which the sexual organs ripened when the animal was still in an embryonic form and before metamorphosis took place. Similar phenomena, it seems, obtain amongst colonies of termites.

The questions of periodicity in sexual life and of sterility in hybrids are then considered. In this connexion we miss allusion to the investigations of Cossar Ewart on zebras. Attention is next directed to the external conditions determining sexual activity and the factors on which sex depends. Most of the remainder of the text deals with the formation, development, chemical, physical, and physiological properties of the male elements in plants, and in spermatozoa in all kinds of animals, including their movements, and such phenomena as rheotaxis, thermotaxis, and chemotaxis. Buller noticed that spermatoza surround unripe ova, even when the ova are killed by osmic acid. Secondary sexual characters and their relation to the genital glands are fully considered, and a very full account is given of castration and "parasitic castration"—i.e., castration brought about by the presence of parasites in the gonads.

Altogether this Lieferung gives a very interesting survey of a fundamental problem in physiology. It is illustrated by many excellent well-printed figures, and the bibliography, as usual, is extensive.

Die Tabes der Frauen. Von KURT MENDEL und ERNST TOBIAS, in Berlin. Berlin: S. Karger. 1912. Pp. 77. Price 2.50 marks.

THE authors have compiled a useful summary of tabes as it occurs in the female sex, and if there is nothing particularly novel in it, it nevertheless contains much interesting information. The percentage of female tabetics is usually given as something like 12 to 15 per cent. of all cases, whereas the figures quoted by the authors from their polyclinic experience of the last ten years are in the proportion of 1·85 to 1 in favour of the male sex. This strikingly high percentage of female tabetics is in part, at least, to be accounted for by the fact that their polyclinic is more frequented by women than by men.

The monograph is based on the examination of some 163 personal cases, of which only 12 occurred in private practice. Of the total number, 114 were married or cohabiting. In the majority of the cases the symptoms appeared between the ages of 36 and 40. No less than 59 per cent. of the married cases were either sterile or childless—i.e., their offspring had been either miscarriages or stillborn children, or children who had died in infancy. From the point of view of etiology, 81 per cent. of the 163 personally observed cases were definitely syphilitic. A number of interesting instances of hereditary tabes and conjugal tabes are included in the list. The Wassermann reaction (blood) was positive in 83 per cent. and negative in the remaining 17 per cent. Details are given of three cases of so-called "Jungfrauentabes"—i.e., virginal tabes on a hereditary basis (tabes of one or other of the parents, or both). The authors state as their mature opinion that as far as the causal connexion between tabes and preceding syphilis is concerned the chain of evidence is absolutely complete: "Omnis tabes e lue: virgo non fit tabica nisi per parentes aut per luem insontium." Their statistics show—what has been, for that matter, accepted by other observers before them—that in untreated cases of syphilis the average incubation period of tabes is 16·2 years, in partially treated cases 11·4 years, and in fully treated cases 7·5 years. Though these facts may appear anomalous the figures are probably quite correct, and the explanation is certainly a little difficult. The authors do not believe in traumatic tabes.

By no means for the first time we raise a protest against the increasingly common habit of referring to certain clinical symptoms and signs by the slipshod expedient of substituting for a description of them the name of the individual who may have been the first to publish the particular symptom or sign, but who assuredly need not have been the first to observe it. To read "Babinski present" or "absent," as the case may be, in a clinical description is one thing—we most of us dislike the phraseology but recognise its convenience; but when we note, in the monograph under review, "starker Romberg, mittelstarker Romberg, geringer Romberg," and when we come across paragraphs on the unilateral or bilateral positiveness or negativeness of Biernacki, Abadie, Haenel, Csiky, we think that the critic who held the expression "medical literature" to be a contradiction in terms had some justification for his opinion.

LIBRARY TABLE.

Men and Measures: A History of Weights and Measures, Ancient and Modern. By EDWARD NICHOLSON, F.I.C., F.C.S. London: Smith, Elder, and Co. 1912. Pp. 313. Price 7*s.* 6*d.* net.—This is a most interesting volume. The controversy which centres round what, in the opinion of the writer, are the questionable advantages of the metric compared with the imperial system are well done, but the chapters on the story of the cubits, of the talents, as well as those referring to the many odd things which have been adopted as standard units—the ell, the rod, pole and perch, the barleycorn, the nail, the clove, and so forth—give the reader a choice of more attractive material for study. The attitude of the author is a defence of the imperial system, and is summed up in the opening sentences of Chapter XXIV. "Two systems," he writes, "are face to face throughout the West—the imperial system, resting on long custom and on convenience, and the metric system, on an assumption of science and on revolt against the past." He believes that "the ancient system used by the English-speaking peoples of the world has been able, not only to survive dangerous perturbations in the past, but also to resist the modern revolutionary system which has destroyed so many others less homogeneous, less capable of adaptation to circumstances." There are many of us, of course, who lean to a system of weights and measures which has behind it the dignity of historical growth, and so has become adapted to circumstances. Science, however (to quote the author's own words), is a good servant of humanity, but it has claims also which make it a good and not a bad master, while, love old institutions as we may, it is hopeless to cling to them because they are old. Science gave us the steam engine and motor, which have practically superseded the horse. The coach can hardly be called an invention of science. It is now an historic institution which as such we delight to read about, but which few would find convenient to retain as a means of getting about the country. Coming to measures, what, it may be asked, is to be done with a standard which sets out zero as 32 degrees below the freezing point of water when temperatures have since been obtained hundreds of degrees below this? Surely 0° as the freezing point of water, and the use of the minus sign to indicate anything lower is an obvious reform and not a "dangerous perturbation." Is it not also much more convenient to divide the scale between freezing point and boiling point into 100 divisions, 100° being the boiling point of water and 0° the freezing point as in the decimal plan of Celsius, instead of 180 divisions, 212° being the boiling point and 32° the freezing point, as in the Fahrenheit scale? Consider, again, the wide margin for error in geographical measures when they begin at a barleycorn, three of which make an inch and increase upward to a league. The origin and growth of systems of weights and measures is a subject of the greatest interest and many will be grateful for this careful collection of facts in spite of occasional statements of the following kind: "No cajolery of science or patriotism will persuade men and women to use the [decimal] system except under police compulsion, and every trick will be used to evade it." In vaccine therapy, of course, the adoption of the imperial system is impossible, while the British Pharmacopœia has recognised the metric system since 1898.

Alle Fonti della Vita. By WILLIAM MACKENZIE. Genoa: A. F. Formiggini. 1912. Pp. 387. Price 10 lire.—The appearance of a book on the "Fountains of Life" is most opportune at the present moment when the question of the origin of life is attracting so much attention. Dr. Mackenzie writes from the marine biological laboratory of the University of Genoa. In his fascinating volume the diction of the most beautiful of languages adds a charm to the play of scientific and philosophical imagination. The treatise appeals to the biologist rather than to the pure physician. In the six chapters into which the book is divided, each of them full of suggestive and stimulating thought, the author traces the fountains of life to their sources in the abysses of the great deep. The chapter on alternating generations, with its motto, "Non omnis moriar," shows that alternation of generation is not confined to the lower organisms, that some dim adumbration of its existence lingers in the evolutionary history of man himself. The second chapter, "Alla Ricerca della Persona," will excite a certain amount of controversy. According to the author the idea of personality is a mere illusion, nature always submerging the individual in the colony. The subsequent chapters on Biological Unity and "Psychic Energy" and on the morality and æsthetics of Nature treat these questions with great charm and clearness. The author maintains that in all living things, from the lowest to the highest, there is distinct evidence of the universality of the Psyche, the logical principle, consciousness, the ethic sense, and the conception of beauty. The general purport of the book is indicated by the frontispiece, which gives the modern conception of the Origin of Life. The sun, the centre and source of terrestrial energy, is seen shining through a cleft in the primeval rocks, and illuminating the fountain of life which is bubbling up from its hidden sources in the caverns of the deep, while the overflow therefrom is gradually building up the mighty stalactite of organic life by the slow process of crystallisation and osmotic growth. The book is adorned with most beautiful coloured illustrations, which convey within a small compass a vivid idea of the beauty and variety of marine life.

JOURNALS.

Jahreskurse für ärztliche Fortbildung. September–October, 1912. Munich: Lehmann. Price 16 marks per annum.—The September number is devoted to a review of orthopædics and affections of the limbs.—Professor Lange writes on Flat-foot, which he subdivides into pes planus, in which the arch of the foot has given way, pes valgus, pes plano-valgus, and pes transverso-planus He recommends the usual treatment of pads or plaster-casing. In pes transverso-planus it is the transverse arch that has given way, the five metatarsals all coming to lie at the same level. This form has only recently been recognised. The pain is beneath the heads of the metatarsals and may produce Morton's metatarsalgia by nipping the nerves. The treatment is to put the foot up in a good position in plaster, or a suitable pad may be worn under the instep. Exercises are also valuable for all forms.—Professor Ludloff, of Breslau, writes on the Diagnosis of Affections of the Knee-joint. Acute non-traumatic diseases may be due to septic or pyæmic infection, to rheumatic fever, or to gonorrhœa. In the last case the trouble is usually monarticular, and gonococci can be detected in the urethra or cervix. Injury may fill the joint with serous fluid or with blood, or it may suffer distortion from tearing of the semilunar cartilages, crucial ligaments, or ligamentum patellæ. Fracture and dislocation are usually not difficult to diagnose. Chronic diseases include the later stages of the more acute conditions, such as gonorrhœal arthritis and ankylosis following on septic conditions. A condition of chronic hydrops without thickening also occurs. When the onset is insidious it may be chronic rheumatism, tubercle, syphilis, hæmarthrosis, arthritis deformans, tabetic arthropathy,

chondromatosis of the knee, or tumour. Chronic rheumatism is usually bilateral and affects a number of joints; it generally follows some infection in women. The joint capsule is thickened. The general characters of tubercle of the knee are described, stress being laid on the constancy of contracture. The diagnosis from syphilis may be very difficult; tubercle is commoner in children, and the skiagram shows irregularity of the ends of the bones, whereas syphilitic knee trouble is usually in adults, is painless, and shows no bony changes in the skiagram. Arthritis deformans may be the end-result of some old injury or disease of the knee. It is more circumscribed than tubercle, and there may be creaking in the joint. Tabetic arthropathy is characterised by great distortion, with little or no pain. Chondromatosis is a curious condition in which the synovial membrane contains a great number of little cartilaginous nodules, causing pain on movement, limitation, effusion, and creaking noises. Injury may be followed by the symptoms of displaced semilunar cartilage or of hypertrophied synovial fringes. In other cases chronic osteochondritis desiccans may develop, recognised by the X rays and by the tendency for loose bodies to form. In arriving at a general diagnosis we have to take into account the pain, creaking noises, configuration, mobility, and the results of X ray examination. Pain without physical signs is neuralgia of the joint; marked deformity without pain usually signifies tabetic or syphilitic disease of the knee. Noises may arise even in the sound knees of adults, but are specially characteristic of arthritis deformans or of displaced cartilage.

The October number deals with the infective fevers, immunity, and tropical diseases.—Dr. Schottmüller contributes an article on Typhoid Fever, from which we now have to separate off paratyphoid fever and "typhus manchuricus" as diseases *sui generis*. Typhoid carriers seem to be nearly all of the female sex, which is, perhaps, related to the fact that gall-stones are common in women, the gall-bladder being apparently more accessible to organisms than in men. The special incidence of the typhoid infection falls upon the lymphatic system, in the Peyer's patches of the intestine, the mesenteric glands and spleen, and the cutaneous lymphatics. The roseola is due, as Fraenkel has shown, to an invasion not of the blood-vessels but of the lymphatic channels of the skin. It is through the thoracic duct that systemic infection occurs. Whilst fever is present, but never on afebrile days, the bacilli can often be found in the circulating blood (90 per cent. cases). They can only be isolated from the fæces in about 15·6 per cent. cases. The blood usually shows leucopenia, with lymphocytosis and absence of eosinophiles (this last is said to be of good prognostic omen), but the blood picture is not absolutely distinctive. The importance of typhoid pyelitis as a complication is mentioned. The finding of the bacilli in the blood is the most important point in arriving at a diagnosis. About 3 c.c. is withdrawn from a vein and cultivated on media containing bile. In the treatment the principal reliance must be placed on the regulation of the food. Fluids only must be given, and these should be in small bulk. Cold bathing should only be used in bad cases. Lumbar puncture is an excellent means of relieving headache. Paratyphoid fever may be due to the acid-forming (A) or the alkali-forming (B) bacillus, which latter is closely allied to Gärtner's bacillus enteritidis, found in cases of meat poisoning, and playing a very important part in animal pathology, causing puerperal fever of cattle and other affections. Thus whilst typhoid fever is a purely human disease, paratyphoid is properly an affection of animals, and the mortality in human cases is only about 0·5 per cent. It may start with acute diarrhœa, and the bacilli may be found in the blood. Vomiting is often present at the beginning. A roseola comes out at the end of the first week; this distinguishes the condition from an acute gastro-enteritis. Herpes of the lips may be present. Hæmorrhage and perforation are very rare. Manchurian typhoid fever has lately been separated out as a distinct entity. The prognosis is good.—The article on Immunity is written by Professor Friedberger and Dr. Ungermann, who pass briefly in review the present state of our knowledge with regard to agglutination, precipitation, cytolysins, hæmolysins, complement-deviation, ferment-reactions, anaphylaxis, vaccine therapy, opsonic treatment, and serum therapy. They describe the process of immunisation by vaccines against tuberculosis and also against acute anterior poliomyelitis.—Tropical Medicine is reviewed by Dr. Olpp. Various methods of quinine medication in malaria are discussed, such as the use of "fractional dosing"; and euchinine is praised as being tasteless and possessing all the virtues of quinine. Several other derivatives (quinine tannate, insipin, &c.) are now on the market. Quinine hydrochloride with ethyl-urethane is recommended for intramuscular injection. Three species of trypanosome are now believed to infect man: the well-known T. gambiense of Dutton, carried by Glossina palpalis; T. rhodesiense, carried by Glossina morsitans; and Schizotrypanum cruzi, affecting infants in Brazil, described in 1909 by Chagas. The differing types of kala-azar, the Indian variety, and also that affecting children south of the Mediterranean and apparently conveyed by pulex serraticeps from dogs, are also discussed.

Quarterly Journal of Experimental Physiology. Editors: E. A. SCHÄFER, F. GOTCH, W. D. HALLIBURTON, C. S. SHERRINGTON, E. H. STARLING, and A. D. WALLER. Vol. V., No. 3. London: Charles Griffin and Co., Limited. 1912. Pp. 203–307. Price 6*s*.—In a paper by E. A. Schäfer on the Effects upon Growth and Metabolism of the Addition of Small Amounts of Ovarian Tissue, Pituitary, and Thyroid to the Normal Dietary of White Rats, the experiments related have been carried out on groups of white rats fed on a normal diet of bread and milk, to which, after a certain preliminary period, small quantities of the glandular substance of the ovary, pituitary body, or thyroid were respectively added. Determinations were made in each group of the rate of growth, the amount of food consumed, the amount of nitrogen excreted and retained, and the amounts of P_2O_5, Ca and Mg excreted. The following are the chief results obtained: 1. Addition of ovarian or pituitary tissue in small amounts to the normal dietary of growing rats has little or no effect on their growth or metabolism. 2. Addition of similar amounts of thyroid tissue causes a great increase of food consumption, especially in quite young animals, with acceleration of growth and retention of nitrogen in the body. At the same time the nitrogenous metabolism is greatly increased, as is indicated by the large augmentation of nitrogen in the excreta, especially in the urine. 3. Certain differences are observable in the two sexes. 4. The excretion of phosphorus appears to be uninfluenced by ovarian or pituitary addition, but there is an increase with thyroid when the addition of this to the food is increased beyond a certain amount. 5. There appears to be an increased excretion of Ca and Mg in pituitary- and thyroid-fed animals as compared with those to the food of which ovarian tissue is added. But the variations in different experiments are considerable, and render this result doubtful.—The Influence of Diet on the Thyroid Gland, by Chalmers Watson, extends to just a little over two pages. The author finds further evidence of the influence of diet in modifying the histological appearance of this gland. He thinks that a diet of flour induces a different state of functional activity as regards secretion from that obtained

in bread and skimmed-milk fed subjects (rats and mice).—The remainder of this part (over 70 pages) is devoted to an elaborate account of Studies in the Physiology of the Nervous System, by Graham Brown, constituting Contributions X., a Note upon Rebound Relaxation after Inhibition, and XI., Immediate Reflex Phenomena in the Simple Reflex. These contributions are of particular interest to physiologists. No. XI. is illustrated by numerous tracings.

Reports and Analytical Records
FROM
THE LANCET LABORATORY.

(1) THAOLAXINE; AND (2) CHOLEOKINASE.

(DURET AND RABY, MARLY-LE-ROI, FRANCE. AGENTS: ROBERTS AND CO., 76, NEW BOND-STREET, LONDON, W.)

(1) FOR the treatment of habitual constipation the use of agar-agar is growing in favour, and thaolaxine is one of the best preparations of this seaweed isinglass which we have examined. As is well known, agar-agar has the property of taking up 15 times its own weight of water, swelling in the process into a jelly form. This property has suggested its use for increasing the volume of the fæces and thus promoting peristalsis. It apparently passes through the stomach unaltered, the swelling process taking place *par excellence* through the intestinal secretion. On persevering with the treatment clinical observations show that it acts in the way indicated without any irritating action in the bowel. There seems, therefore, to be a future for agar-agar in the treatment of habitual constipation, especially when it is desirable to exclude irritating purgatives and aperients. Thaolaxine occurs in four forms of administration—viz., in flakes, in cachets, in granules, and in tablets. (2) Choleokinase contains the essential principles of the bile prepared in a form suitable for effective treatment chiefly of muco-membranous entero-colitis. This treatment is based upon the opinion that the best stimulants of bile secretion are the biliary principles of the bile themselves, the inadequate secretion of which may lead to the inflammatory affection. On examining the preparation we found that it promptly responded to Pettenkofer's test for biliary acids. Thus on spreading a watery mixture of choleokinase on a porcelain plate and dropping into the shallow pool some strong sulphuric acid containing glucose a pretty play of crimson colours was produced. In addition choleokinase contains the ferment secreted by the duodenal wall, which stimulates the pancreatic ferments to activity. The preparation is contained in an ovoid envelope of a material which ensures passage through the stomach unchanged to the duodenal region. This treatment by biliary principles and the duodenal ferment is worthy of attention, and apart from the claim in regard to value in colitis favourable application is also suggested in chronic constipation and jaundice.

THIOMEL.

(THE S.P. CHARGES CO., ST. HELENS, LANCASHIRE.)

This is an attractive-looking unguent of a light yellow colour. It is claimed to contain sulphur not only in a combined and dissolved form but also in a state of suspension. These claims were substantiated by the results of our examination. On treatment with cold ether the oil dissolved, forming a yellowish coloured solution, while a small residue remained consisting of sulphur. On heating the ointment with caustic soda there was no evidence of saponification, and so we may conclude that the fatty basis is a hydrocarbon oil. The caustic soda contained an abundance of sulphur extracted from the oil. The ointment is of uniform consistence and well adapted for application to the skin. The melting point brings it into the category of a soft grease. Further, its keeping qualities are excellent, and there is no fear of any deterioration arising out of changes effected by oxidation. Having regard to the excellent way in which the sulphur is combined definitely with a bland hydrocarbon, it is not surprising to learn that thiomel has been used with decided advantages in those skin affections for which hitherto the B.P. sulphur ointment has been prescribed. It is chiefly in the local treatment of parasitic skin complaints that we imagine thiomel promises good results. It is an obvious advance on the official unguent.

PAROLEINE SPRAY COMPOUND.

(BURROUGHS, WELLCOME, AND CO., SNOW HILL BUILDINGS, LONDON, E.C.)

This is a well-designed compound for the treatment of catarrhal conditions of the respiratory tract. The vehicle is a bland, soothing, non-irritating oil, and in this are contained sedative, analgesic, and antiseptic agents in the form of menthol, chlorbutol, and eucalyptus. The compound is applied by means of the paroleine atomiser, which is constructed particularly for the efficient application of a medicated oil in the form of fine spray.

TOFAM STANDARD FILTER.

(THE BRITISH TOFAM CO., 9, CARTHUSIAN-STREET, LONDON, E.C.)

This is a simply constructed filter which can easily be attached to the ordinary water-tap, where it serves a useful purpose in removing the impurities incident to the passage of a water-supply through cisterns and pipes. We agree that this precaution is oftentimes advisable, since there is commonly an accumulation of chalk or other mineral matters in the pipes, while a deposit of rust is a common occurrence in the cistern. The chamber or filter is packed with small quartz, beneath which is a pad of absorbent material; and, finally, there are layers of fine gauze which, amongst other things, ensures a steady stream of water without splash. It is easy to replace the materials when such a step is indicated. Nowadays the water-supply of municipalities is, as a rule, so good that filtration is unnecessary, but, of course, local mechanical impurities do arise, and these may be kept out by a filter designed on the convenient lines just described.

CAPSOGEN.

(SOUTHALL BROTHERS AND BARCLAY, LIMITED, NEW CHARFORD MILLS, SALTLEY, BIRMINGHAM.)

The particular advantage of this capsicum wool is that it is encased in gauze, the gauze itself being also impregnated with capsicum. The gauze serves as a protective layer to the wool, while at the same time it keeps the dressing uniformly in position and secures an evenness of contact. The counter-irritant and rubefacient properties of the capsicum are thus distributed evenly over a definite area. The inert and waxy matters of the capsicum are rejected. The applications of capsicum externally in this way in rheumatism and throat troubles are well known.

HARVEIAN SOCIETY OF LONDON: ANNUAL DINNER.—The annual dinner was held at the Hotel Great Central on Nov. 14th, Dr. H. J. Macevoy, the President, being in the chair. After the usual loyal toasts the President proposed the health of "The Harveian Society," and Mr. D'Arcy Power proposed "The Kindred Societies," which was responded to by Mr. A. H. Tubby, President of the Hunterian Society. The toast of "The President" was proposed by Dr. Willcox, and Dr. Macevoy, in his reply, said he wished to acknowledge the assistance he had received from the secretaries, Dr. D. M. Carmalt-Jones and Dr. Turtle, and proposed their healths. Between the toasts an excellent programme of music, arranged by Mr. Vivian Bennetts, was performed, including songs by Mr. Herbert Tracey, Mr. Wilden Knight, and Miss Maude Willby.

THE LANCET.

LONDON: SATURDAY, NOVEMBER 23, 1912.

The National Insurance Act.

As is reported in another column of our issue this week, the Representative Body of the British Medical Association have met in London to come to a decision upon what course the Association should pursue with reference to service under the National Insurance Act. It will be remembered that the report of the Council of the Association to the Divisions of the Association and the Representative Body upon the present position of the profession in regard to the Act was issued on the last day of October. This report, the result of two days of long and close debate, concluded by asking the Divisions to instruct their Representatives whether they desire (*a*) to give service under the Act under certain conditions set out in the report, or (*b*) to refuse service. The conditions set out in the report were as follows, a little abbreviated:—That all agreements to give medical attendance and treatment under the Act should be of a purely provisional character; that no arrangements of the kind should be entered into by any Local Medical Committee until approved by the Council of the British Medical Association; that the whole force of the Association together with all the resources of the defence funds should be placed at the disposal of those areas which failed to secure proper treatment; and that every effort should be made to maintain the independence of private practice, to which end a public medical service should be instituted and held in reserve. Such were the questions to which answers were sought by the Council of the Association.

The reply of the Divisions, through the Representative Body, as shown by the majority of the voting, has not exactly fallen into line with either of the alternatives submitted by the Council. A very small minority of the Representatives had been instructed to express willingness to give service under the Act in accordance with the Provisional Regulations, but with the safeguards formulated in the report. The overwhelming majority of the Representatives came to the conclusion that they would not work the Act at all under the present conditions, nor appoint any committee with plenary powers to negotiate with the Government. Between the smallest and largest sections of the Representatives came a third section, who showed themselves willing to continue negotiations with the Government with a view to emendation of the Regulations, so that in various directions the things that have been so long demanded as the irreducible minimum might more nearly be obtained. The debate, before this section could give effect to their views, was very protracted, and upon one issue a card-vote was taken which showed the constituencies to be nearly equally divided as to the way in which the door should be left open for future conference with the Government. At length the Representative Body instructed the Council to inform the Chancellor of the Exchequer of the decision, carried by an overwhelming majority, not to take service under the Act and Regulations as at present constituted, and to signify at the same time the points on which it would be possible for the representatives of the British Medical Association to confer with him. The meeting then proceeded to elect its representatives for such a conference, and appointed Dr. J. A. MACDONALD, Mr. E. B. TURNER, Dr. T. A. HELME, Mr. T. J. VERRALL, and Dr. R. M. BEATON, who will lay before the Chancellor of the Exchequer what the Representative Body consider the reasonable demands of the medical profession—these demands now superseding the six cardinal points.

A new State Sickness Insurance Committee has been appointed, and will be entrusted with the duty of arranging any conference that may be obtained with the Chancellor of the Exchequer, and the responsibilities of this Committee have been carefully considered beforehand. The main difference between the present situation and that arising out of any previous negotiations with the Government is that the approval of any terms that are ultimately arrived at will now be left to the Divisions of the Association, the constitution of the Association appearing to provide, though by somewhat complicated procedure, for this contingency. A basis, therefore, is reached upon which terms may be arranged which, if not entirely satisfactory either to the medical profession or to the Government, will at any rate give effect to the purposes of the Act; while the medical profession appears not in the odious light of offering the reply of a blank *non possumus* to all proposals—this being the picture which certain persons have found it convenient to draw of us—but as willing to coöperate with the State and the public for the general good. Throughout the debate it was made manifestly clear that the resistance of the medical profession to the terms, upon which, through their services, the advantages of medical benefit accrue to insured persons, was due to the feeling that our professional status was endangered by conditions of employment that were opposed to scientific development and to due independence of practice; it was not a mere demand for money. The way appears now to be open for a settlement, if only a provisional settlement, of the points at issue between the profession and the Government, though we must all feel that the time is lamentably short in which to get any general scheme into working order, flexible as are those of the Provisional Regulations which will remain unchallenged.

Injury to the Semilunar Cartilages of the Knee.

AT a recent meeting of the Surgical Section of the Royal Society of Medicine a discussion was held on the mode of production of injury of the semilunar cartilages of the knee-joint, when the points brought forward were certainly of sufficient interest to deserve more attention than, apparently, they have received. The various conditions due to injury of the semilunar cartilages have long received surgical attention, but it is only of comparatively recent years that any measure of exactness in diagnosis has been arrived at. HEY was the first to recognise the condition which we now know to be due to an injury of a semilunar cartilage, and as he was not certain of the real nature of the injury he gave it the name of "internal derangement of the knee-joint." This was certainly a non-committal term, but it is far better to give an indefinite name to an undefined condition than to choose a descriptive designation which may later prove to be incorrect. Many years elapsed before it was clearly seen that the injury was undoubtedly connected with the semilunar cartilages; the general opinion was held that the chief factor in the trouble was a displacement of one or other cartilage, but there was much doubt as to the exact condition and as to the mechanism by which the injury was produced.

Recently a good deal of careful attention has been directed to the various circumstances of injury of the semilunar cartilages, and at the meeting at the Royal Society of Medicine the discussion was introduced by the reading of two papers, each of real importance and each a genuine contribution to our knowledge of the subject, although the views expressed by the two papers were almost totally opposed in the explanation of the mode in which the injury to the cartilage is brought about. The first paper was read by Mr. ALBERT J. WALTON,[1] and was the more theoretical, for it was founded not so much on the actual conditions of occurrence of the injury, but rather on observation of the anatomical peculiarities of the joint and on experimental attempts to produce the injury in the cadaver. Mr. WALTON maintained that the tendency to injury or displacement of one or other of the semilunar cartilages is brought about by full extension; and that this tendency to displacement is much more marked at the anterior end of the internal cartilage for several reasons, but especially because the screw action which takes place at full extension is more marked there than elsewhere, while the anterior end of the cartilage is loosely attached. Further, he showed that in no other position of the joint than full extension were the conditions favourable for injury to the cartilage. His paper was, however, by no means all wholly theoretical, for he had examined 77 cases of injury to the semilunar cartilages which had been treated at the London Hospital, and an inquiry into the conditions under which these injuries had occurred showed that over-extension had been present. The whole paper was evidently the product of much care in investigation and the conclusions appeared thoroughly sound. Mr. ALBERT M. MARTIN'S paper,[2] which was published in full in our columns, was in several points a great contrast to Mr. WALTON'S, for it was founded almost entirely on observation of 449 cases which had been under his own care and on which he had operated. He pointed out that a large proportion of his patients had been miners or football players, or had followed both these occupations. The liability of miners to an injury to a semilunar cartilage he attributed to a sudden wrenching or twisting of the leg while the knee was greatly flexed. The paper also contained particulars as to the injuries which had been found in the cartilages; sometimes the cartilage was detached, sometimes it was slit in one or other of various ways, and sometimes the free border was torn. His main point was that the injury was brought about with the knee in a position of flexion; in fact, that in the case of miners the knee was kept by the nature of his work in a position of great flexion, for it was impossible for the miner while hewing coal to stand upright; he had to sit crouched, so that no over-extension could occur. It is clear, therefore, that there is a great discrepancy between these two opinions, for while Mr. WALTON maintained that it is in the fully extended or even an over-extended knee that the conditions are favourable for an injury to a semilunar cartilage, Mr. MARTIN was equally positive that in at least the majority of his cases the knee could only have been flexed when the injury occurred.

The usual way out of the apparent *impasse*, which we seem to reach when two equally competent and conscientious observers, upon practically the same data, arrive at diametrically opposite conclusions, is to assume that both are wrong, and that the truth lies somewhere midway between their views. But in this case it may well be suggested that both are right. May it not be that an injury to a semilunar cartilage can occur either when the knee is flexed or strongly extended, if at the same time some rotational movement occurs? In the cases of flexion true rotation can take place, and in the cases of extension there is the screw-like movement which results from the tightening of the crucial ligaments. It would be unwise in the present state of our knowledge to dogmatise, but it appears to us that this view is compatible with both theoretical considerations and practical observations, and therefore may well be held until, with an increase of knowledge on the subject, we can speak with more certainty. Although there is this doubt as to the mode in which the injury is brought about, there can be no uncertainty that in any but a first attack the removal of the damaged cartilage will, if due care be taken to prevent the infection of the joint, give the patient a knee which will be as effective for work or play as before.

[1] THE LANCET, Oct. 12th, 1912, p. 1013.

[2] THE LANCET, Oct. 19th, 1912, p. 1067.

Annotations.

"Ne quid nimis."

SHIP RATS AND THE SPREAD OF PLAGUE.

IT seems scarcely necessary at the present day to emphasise the view that the spread of plague from one continent of the world to another is mainly effected, apart, of course, from human infection, through pestiferous rats carried on shipboard to healthy ports, where foci of the disease may be set up among the local rats, from which in time and through the agency of the rat-flea the specific microbe is transmitted to man. The opinion formerly held that plague virus could be conveyed under ordinary conditions by articles of commerce for long distances on vessels at sea is losing ground, more especially since some experts have asserted that the bacillus pestis usually loses its virulence to a greater or less extent when separated from the animal body, and more particularly when exposed to drying by the action of the sun or wind. It is obvious, then, that the chief precautions to be taken against the importation of plague must include destruction of rats on ships, as well as on shore, in each port sanitary district, and also the use of means for preventing, as far as is practicable, the landing of recently arrived ship rats. It has to be remembered that rats have various other ways of leaving the ship and reaching the shore than by making use of gangways or mooring ropes. For example, they only too often conceal themselves in bales or in crates of goods, especially when the articles are packed in hay or straw; and in this manner they may be taken on shore in a lighter or landed directly upon the quay. Rats, similarly, may find their way on board a ship leaving an infected port. For instance, at San Juan, Porto Rico, which has recently been suffering from a prevalence of plague in man and in the rat, some packages of goods about to be placed upon a ship were examined the other day and a large number of the rodents were found concealed in the packing material and ready to be shipped with the goods to ports in the United States. It is unfortunate that so little information is usually available respecting the occurrence of epizootics of plague in rats at foreign ports. The International Sanitary Convention of Paris, of which most of the civilised nations are now signatories, makes no provision for rendering obligatory the notification of such occurrences, the reason for this being probably that the delegates of the Great Powers were reluctant to impose restrictions upon trade or inconveniences upon shipping. In the absence of such a provision, which might have proved very useful, it becomes all the more essential that prescribed measures dealing with rats on ships should be strictly enforced on all vessels arriving "from foreign." Every great maritime nation is extremely liable to the importation of plague by ship rats. Among other countries, Britain has not escaped, for in addition to outbreaks of rat plague in the London Docks on several occasions, epizootics among rodents have occurred of late years at various British ports, including Hull, Glasgow, Cardiff, and Ipswich. At Liverpool, too, from time to time an infected rat has been found, landed presumably from a recently arrived vessel, but there has never been, so far as we can ascertain, any outbreak of the infection among the local rats. The precise sources of these plague epizootics in rats at our ports were not in all instances definitely traced, but there are grounds for attributing the origin of most of them to some Eastern port, such as Bombay or Alexandria, though, on the other hand, the Ipswich outbreak was believed to have been traced to a South American source. From various quarters, most of them unofficial, reports have reached us in recent years as to infection of dock rats in various European ports—among others, Marseilles, Calais, Oporto, and Odessa; few details, however, of these epizootics have been published by the port authorities concerned. The experience of Hamburg, Germany's greatest commercial port, is both interesting and instructive. Since the year 1900 plague-infected rats have been detected on board some 47 vessels on their arrival in the Elbe; in no fewer than 41 instances the ships had come from a South American port; and mostly from one or other of the grain ports, such as Rosario, in the Rio de La Plata, commonly known in this country as the River Plate. These vessels carried cargoes chiefly of cereals along with linseed and oilcake or other articles notorious for attracting rats. Bacteriological examination was made upon the bodies of about 8000 dead rats, picked up on these ships before or after they had been submitted to the process of "deratisation" by Nocht and Giemsa's method (of which carbon monoxide is the active ingredient), with the result that nearly 350 of the rodents were shown to have suffered from plague. Many of the rats picked up were in an advanced state of decomposition and definite results in the circumstances could not be expected from the bacteriological investigation; but it is believed that a number of these also had died from plague. So far as is known there has at no time been any extension of the plague infection from the ship rats to those on shore nor to the resident population of Hamburg—a result which speaks well for the careful and efficient way in which the anti-rat regulations are carried out by the port officials. Hamburg's greatest source of danger, as indicated above, is from the ports in the River Plate, but from these, it is worthy of mention, no reliable information is made public as to the local incidence of plague in man or in the rat. Evidence from private sources, however, convinces us that outbreaks of human plague have been fairly frequent in these ports of late years, as well as epizootics in rats. The policy of concealment, which is unfortunately so general in South America, is apparently adopted in the River Plate ports with a view to protect local trade interests, no consideration being shown to those of the European ports with which they carry on their commerce. In the circumstances German and English ports, for their own protection from plague, have to rely largely upon the excellence of their own regulations and upon the efficiency and alertness of their own sanitary staffs.

THE BRAIN LESIONS PRODUCED BY ELECTROCUTION.

THE rapid increase in the use of electricity and the consequent increase in the number of injuries due to it render the study of its effects on the human body necessary. An important contribution to the subject has been made in the *American Journal of the Medical Sciences* for September by Professor E. A. Spitzka and Dr. H. E. Radasch, who have examined the brains of five criminals executed by electricity. Within 15 minutes of death the brain stem (medulla, pons, and mid-brain) was immersed in formalin. After hardening each brain stem was divided into six or eight segments, dehydrated, infiltrated with celloidin, cut into sections and stained. At all levels peculiar areas varying in size and number were observed. They were circular and varied in diameter from 25 to 300μ. They consisted of two portions—a central rarefied part and a peripheral condensed zone. The most characteristic areas contained a blood-vessel (capillary or precapillary) surrounded by a delicate reticulum representing the central four-fifths of the area. The fibrils of the reticulum

were in the main radially directed, and nuclei were sometimes observed along their course. The peripheral ring appeared to be condensed, staining more deeply than the surrounding tissue, and was sometimes seen to be composed of circularly arranged strata. Sometimes the lesions were perivascular, being arranged along the blood-vessels like a string of beads. One area observed at the level of the inferior corpora quadrigemina was of special interest. Its central part was ragged and contained vessels and torn tissue, as though a sudden explosion rending the structures had occurred. The explanation of these appearances can only be guessed. The beads along the vessels, the condensation zone limiting each, the radially disposed fibres, and the torn tissue seem to indicate sudden liberation of bubbles of gas due to electrolysis, as the current sought the path of least resistance along the vessels. The maximum number of lesions were found in the most constricted parts of the brain stem in the path of the current, and they were most numerous along the longitudinal fibre tracts and blood-vessels. The constancy with which these lesions were observed is remarkable. They do not appear to have been observed after death as due to any other cause. Their medico-legal importance in cases in which the question may arise whether death was due to electricity is obvious.

CHOLERA PREVENTION AND TREATMENT IN INDIA.

FOR a long series of years cholera has played havoc among the people of India, carrying off upon an average about 400,000 of them annually, and inflicting upon many others much unnecessary suffering, especially among the poorer classes of the population. The disease has been the dread alike of the civil and the military administration. It is now almost universally admitted that most of these annual outbreaks are largely due to the Hindu habit of fouling and misusing the sources of water-supply, and that the spread of the infection from one locality to another is frequently associated with the holding of bathing fairs and pilgrimages to shrines situated near rivers, springs, or tanks. So long as the natives will continue to defile their sources of drinking water so long will India be devastated by cholera outbreaks. Any investigations which help to throw light upon the prevention and treatment of this disease in India must be warmly appreciated by the medical profession, as well as by all those concerned in the government of that country. In THE LANCET to-day we publish two such papers by officers of the Indian Medical Service, each contribution, though modestly styled a "note," appearing to be of considerable importance in connexion with the subject of cholera. The first is by Major E. D. W. Greig, entitled a "Note on the Occurrence of the Cholera Vibrio in the Biliary Passages," giving the results to date of certain investigations which he had made while on special duty under the Indian Research Fund Association. It had been formerly reported that the cholera vibrio, unlike the bacillus typhosus, did not under certain circumstances make the bile or biliary passages its haunt, and that it confined its operations to the intestine. Major Greig, with a view to test the truth of this statement, examined bacteriologically the bile of no fewer than 271 persons who had died from cholera, and found in 81 of them that the cholera microbe was present in the bile or gall-bladder, the latter organ in some instances showing pathological changes. The importance of this finding cannot be exaggerated, and its bearing upon the question of cholera carriers will demand consideration. That the danger is not one of small dimensions is shown by the fact that in no less than one-third of the cholera cases examined by Major Greig the vibrios were discovered in the bile. This investigation is being continued, and a further report is promised at a later date. Meanwhile these observations will no doubt urge forward other workers to search for some means of destroying the cholera microbe in the gall-bladder, either by chemotherapy or by other means, and thus prevent the spread of the infection by carriers. The second paper is a "Note on Major Leonard Rogers's Method of Treatment of Asiatic Cholera," by Major J. W. D. Megaw, who gives his personal experience of the treatment of the disease in the Medical College Hospital, Calcutta, during the period before Major Rogers's method was introduced and subsequently. Major Megaw was on the staff of the hospital in 1905 and 1906, and states that the cholera case mortality was then fairly constant over a series of years at about 60 per cent. But during a period in 1911, when he took charge of Major Rogers's wards, the cholera case mortality under the new method of transfusion of hypertonic saline solution and oral administration of permanganates fell to 32 per cent. taking all the cases treated, 112 in number; but excluding the milder attacks, and including only those which needed transfusion, amounting to 94, the case mortality rate was 37·2 per cent., a result with which the originator of the method may well feel pleased. As this new mode of treatment is likely to be adopted in other cholera hospitals in India, it is probable that before long a reduction of mortality from the disease may be recognised. In this connexion we may briefly advert to a paper by Major Rogers published in THE LANCET of Oct. 19th on the subject of the treatment of amœbic colitis, or dysentery, in India by means of hypodermic injections of soluble salts of emetine, a method of treatment which we understand has already in many cases effected a rapid and permanent cure, as well as preventing in numerous instances the development of amœbic hepatitis and liver abscess. To devise methods of treating with some success two such formidable diseases as cholera and amœbic dysentery is an achievement of which Major Rogers's colleagues in the Indian Medical Service may well be proud.

THE TRANSMISSION OF SARCOPTIC MANGE OF THE DOG AND CAT TO MAN.

IN the *Veterinary Journal* for November there is an interesting summary of a number of cases in which it was clearly demonstrated that the infection of sarcoptic mange of the dog or cat had become transmitted to human patients. The authors, Dr. A. Whitfield and Professor Frederick Hobday, F.R.C.V.S., saw 17 instances in collaboration, and Dr. Whitfield saw five others, making a total of 22 cases carefully traced up to their source, the diagnosis in the animal being made by Professor Hobday and that in man by Dr. Whitfield. Although the possibility of the transmission of this disease from animals to man is well known, and is referred to in both human and veterinary text-books, it is not generally known how frequently this accident happens, and in quite a number of these specific instances the people had previously been treated for the skin irritation without the true cause being suspected. Various parts of the face, body, arms, and legs had been attacked, the favourite situations being the soft part of the inside of the forearm (where the head and neck of a pet dog would rest when being nursed) and around the neck, where the body of the dog would be pressed when being fondled. In several instances the disease had been contracted from the objectionable habit of allowing the dog to sleep in the bed. In the dog the disease is characterised by continuous scratching, especially of the skin under the arms and thighs, and, at a later stage, by loss of hair and the appearance of scabs, scurf, and small bleeding sores. If

neglected the skin of the animal has a peculiar mousy odour and becomes very loathsome. In human beings the individual lesion is a very small and thin-walled vesicle, slightly smaller than the ordinary eczema vesicle, and surrounded by a narrow zone of hyperæmia, very like that of varicella, but only about one-eighth the size. These lesions are always scattered discretely over the surface and not in grouped lesions. The intense irritation leads to the decapitation of the little vesicles, and their original site becomes covered with either a serous or blood scab. No burrows are found, and thus it is very difficult to discover the actual parasite. This latter fact makes it necessary to trace up the source of origin, if possible, to an "itchy" dog, and in one of the instances alluded to in the article the patient was re-infected three times before it occurred to the medical man to investigate the so-called "eczema" of his patient's dog. The course of the disease in the human being is about six weeks, in the absence of treatment and of re-infection; and, if treated, the ordinary treatment for human scabies is quite efficient, the disease showing less tendency to relapse because the parasite does not burrow. In the dog and cat the average duration of treatment to effect a cure is about three or four weeks; and here again, unless a re-infection occurs, the cure is permanent.

SYPHILIS OF THE STOMACH.

SYPHILIS of the stomach has rarely been observed; its diagnosis has often been missed and useless operations performed. In the *Albany Medical Annals* for October Dr. Jerome Meyers has published an interesting case and exhaustively reviewed the literature of the subject. A man, aged 24 years, came under observation on May 27th, 1911. He contracted syphilis five years before, and had been treated with mercury for four years. For six months he had suffered from dull pain under the right costal margin, which later extended across the middle line and became localised under the left costal margin and in the umbilical region. The pain occurred immediately after eating and lasted half an hour. Vomiting took place only once. There was muscular rigidity in the epigastrium and under both costal margins for a distance of about four centimetres. The lower border of the stomach was two finger-breadths below the umbilicus. On the anterior aspect of the left knee was a large copper-coloured ulcer. A test meal was well-digested and showed a total acidity of 62, and free hydrochloric acid 42. The patient was treated for gastric ulcer and improved, but fever and sweating occurred. On June 11th an irregular slightly nodular hard mass was felt beneath the left rectus muscle, extending 4 or 5 centimetres from the costal margin. It moved with respiration and was tender on palpation. The spleen was palpable 1·5 centimetres below the ribs. The Wassermann reaction was strongly positive. Radiography after a bismuth meal showed that the pyloric portion of the stomach was dilated. Gummatous infiltration of the stomach was diagnosed. Under 15-grain doses of iodide of potassium and mercurial inunction the pain disappeared in a few days and the mass became softer. On July 8th he had gained 10 lb. and was eating well and free from pain. The mass could still be felt, but was softer, and there was no rigidity or tenderness. He moved away to a distant State, and wrote in January, 1912, that he was free from any stomach trouble. Dr. Meyers has studied and tabulated 59 recorded cases of gastric syphilis, congenital and acquired. Of 49 acquired cases, 31 occurred in males. The youngest patient was 18 and the oldest 60 years. The earliest period at which the condition occurred after the primary lesion was 10 months (in the youngest patient), and the latest 25 years (in a man of 48). In 4 cases gastric symptoms occurred as early as two years after infection, in 2 cases after four years, and in 2 cases after five years. The majority of cases occurred in the tertiary period. In the congenital cases there was a multiplicity of lesions—gummata of the liver, intestines, bones, or lungs. Such multiplicity was present in only a minority of the acquired cases. The gastric lesions were various—gumma, ulcer, and peritonitis. The gummata occurred in all parts of the stomach, and varied in size from microscopic lesions to ones of the size of the hand. In some cases they were circumscribed, in others widespread. When near the pylorus they produced the symptoms of stenosis due to a neoplasm. Sometimes they ulcerated deeply and even led to perforation. Large parts of the stomach were sometimes involved, giving rise to such diagnoses as linitis, chronic hypertrophic gastritis, and pyloric stenosis. Hæmorrhage may result from erosion of a blood-vessel. Finally, in consequence of massive infiltration or adhesions hour-glass contraction of the stomach may be produced. Thus, syphilis of the stomach presents the protean character of the disease in other parts. It is often mistaken for other gastric diseases. Probably it is more common than is supposed, and some of the intractable cases of so-called simple ulcer or gastric tumour, if more closely scrutinised, would turn out to be syphilitic. Suspicion should be aroused by a history of syphilis or the presence of the Wassermann reaction. Pain was present in 67 per cent. of the cases, and was prone to occur after eating. Nocturnal pain was observed in some cases. Tenderness was often marked; it is the result of extension of the gummatous process to the serosa. Hæmorrhage occurred in 30 per cent. of the cases, and was often so profuse as to be fatal. Sometimes it was the first symptom. Emaciation was a marked symptom in 47 per cent. of the cases. Vomiting may occur, and is dependent on the site of the lesion. The physical signs are the same as in other organic gastric conditions, such as tumour, ulcer, or stenosis, but in palpation attention should be directed to the presence of multiple lesions with tenderness and rigidity. The test meal does not give anything characteristic; the gastric juice may be normal, hyperacid, or anacid. The prognosis is good provided the patient is not too debilitated by the mechanical effects of the tumour, or there are not adhesions and peritonitis. Unless recognised early the latter cases are not favourable, and specific treatment is of little value. In other cases, even when there is a large tumour or profuse hæmorrhage, mercury and iodides give brilliant results.

THE FILTERABLE VIRUSES.

THE list of diseases due to "filterable viruses"—microbes which pass through filters with pores too small to give passage to bacteria—is longer than might be supposed. Thirty diseases are known or suspected to belong to this class. The filters used are the Berkefeld (made of diatomaceous earth) and the Chamberland (made of unglazed porcelain), which have been used for many years for separating bacteria from their products of growth. Professor S. Flexner, in the Huxley Lecture, published in these columns (see THE LANCET, Nov. 9th, p. 1273), showed how the discovery of filterable parasites had increased our knowledge of infection and its control, and in the *Boston Medical and Surgical Journal* Dr. S. B. Wolbach has given recently an interesting summary of our present knowledge in this direction. Researches began with the discovery by Loeffler and Frosch in 1898 that the virus of foot-and-mouth disease would pass through the finest porcelain filters. Independently and soon afterwards Beijerinck found that the "mosaic disease" of the tobacco plant was due to a virus with the same property. He drew the conclusion, which is

not now held, that living matter can exist in a fluid state. Following Beijerinck's publication came the claim by Iwanowski, which he substantiated, that he had previously, in 1892, demonstrated the filterability of the virus of the mosaic disease. After this our knowledge of the filterability of viruses rapidly increased. The term "ultramicroscopic" is often used as synonymous with filterable, but filterability does not necessarily mean that the virus cannot be made visible in some stage of growth or by the methods of illumination now used. One virus—that of the pleuro-pneumonia of cattle—passes through the Berkefeld filter, but may be seen by transmitted light with the best instruments and a magnification of 1500 diameters. With the ultramicroscope particles may be demonstrated but a few times larger than protein molecules. Its delicacy is such that, in order to obtain water free from particles that disperse light, repeated distillation is necessary. The particles seen by this method of illumination appear as luminous points, and it is impossible to distinguish minute organisms, such as filterable viruses, from the myriads of particles necessarily present in the fluids examined. The possibility of studying the visible viruses by direct illumination seems hopeless, inasmuch as the very nature of light limits the size of objects that may be studied to two-tenths of a micron. There is some evidence that filterable viruses may have a stage of life visible under the ordinary microscope, particularly those which are transmitted by intermediate hosts. At the Liverpool School of Tropical Medicine Breinl and Kinghorn claim to have obtained infective filtrates from the blood of animals containing the spirochæta of African relapsing fever. This result is compatible with the fact that this organism has an unknown cycle of development in its intermediate host—a tick. Borrel obtained from the lesions of sheep-pox a minute flagellated protozoon which passed through bacteria-proof filters at one stage of development. The greater number of the diseases known to be due to filterable viruses affect the domestic animals: thus the pleuro-pneumonia of cattle, African horse sickness, sheep-pox, cattle-plague, hog cholera, swamp fever of horses, infectious agalactia of sheep and goats, catarrhal fever of sheep or blue tongue, distemper of dogs, infectious stomatitis papulosa of cattle, guinea-pig epizootic, a peculiar paralysis of guinea-pigs, and a rat disease. A few diseases are common to man and animals, or at least are intercommunicable: foot-and-mouth disease, rabies, vaccinia, and variola. The diseases peculiar to man are yellow fever, molluscum contagiosum, dengue fever, verruca vulgaris, trachoma, sand-fly or three-day fever, poliomyelitis, typhus fever, measles, and scarlet fever. In birds there are fowl pest, fowl diphtheria, and chicken sarcoma, recently described by P. Rous. In plants so far there is known only the mosaic disease of the tobacco plant. These diseases admit of a somewhat significant grouping. One group is transmitted by intermediate hosts—biting insects. The mosquito transmits African horse sickness, yellow fever, and dengue fever. Sandfly fever is transmitted by a midge (phlebotomus), and typhus by the body louse. In all these diseases the virus is a blood parasite. In another group the virus enters the body directly through an abrasion or wound. These are rabies, molluscum contagiosum, verruca vulgaris, chicken sarcoma, and probably trachoma. A third group is transmitted by contact with infected material, such as discharges from the eyes, respiratory tract, or wounds, or by excreta. These are the pleuro-pneumonia of cattle, cattle plague, distemper of dogs, fowl pest, fowl diphtheria, infectious stomatitis papulosa of cattle, and agalactia of sheep and goats. Possible air-borne diseases are sheep-pox, hog-cholera, measles, foot-and-mouth disease, variola, and scarlet fever. In some of these diseases, such as foot-and-mouth disease, variola, sheep-pox, hog cholera, measles, and scarlet fever, the lesions show cell inclusions which are more or less specific. In the distemper of dogs, fowl pest, rabies, poliomyelitis, and guinea-pig paralysis the virus shows a preference for the central nervous system.

THE INTERNAL SECRETION OF THE OVARIES.

AFTER the facts relating to the secretion of the thyroid gland had been put on a definite basis, attempts were made to ascertain the truth of the views propounded as to the trophic influence of various other internal organs. In the case of the suprarenal bodies one distinct substance, adrenalin, has been isolated and shown to possess marked physiological activity, and a very similar principle has been obtained from the pituitary gland. There remain the thymus gland, the kidneys, the pancreas, the testes, and the ovaries, to all of which internal secretions have been attributed with varying degrees of probability, but in none of these has a definite hormone been isolated. The facts observed in relation to the existence of an internal ovarian secretion are reviewed in an interesting paper which appears in the July issue of the Proceedings of the Royal Society of Medicine[1] by Dr. A. Louise McIlroy, who also makes some original contribution to our knowledge in this field. The influence of the ovaries on pregnancy was shown by experiments made by Fraenkel and by Loeb, the former showing that the removal of the corpora lutea was followed by abortion, while the latter demonstrated that irritation of the mucus membrane of the uterus was followed by production of decidual nodules if the corpus luteum was intact, but not in its absence. A clinical confirmation of this influence of the corpus luteum is seen in the frequent co-existence of lutein cysts in cases of syncytioma or deciduoma malignum. The influence of the ovaries on lactation is not definitely established, nor is the effect of castration upon young females before puberty so well defined as the condition which ensues in males deprived of the testes; nevertheless, it seems that in castrated females the uterus develops incompletely, and the external genitals and mammæ may remain rudimentary. In the mature female removal of both ovaries is followed by cessation of menstruation, and Dr. McIlroy confirms the observations of Carmichael and Marshall that atrophy of the uterus itself takes place. Grafting an ovary from another individual may prevent the effects of castration, but administration of ovarian extract has not been successful. Dr. McIlroy attributes the activity of the ovary in the elaboration of a hormone acting on the uterine tissues to the interstitial cells of the organ, whereas the corpus luteum is the part which most markedly affects the body as a whole, an extract of this body giving rise when injected to distinct rise of blood pressure. No definite proof of any influence on calcium metabolism was afforded by this writer's experiments, but removal of the ovaries in rabbits caused an increase in the deposits of fat throughout the bodies of these animals. It is interesting to compare with these results the curious case of alopecia recorded in the same volume by Dr. G. Norman Meachen and Mr. F. L. Provis.[2] A woman during her second pregnancy noticed falling out of her hair, and finally became quite bald. During her third pregnancy the hair began to grow again, but after the occurrence of a still-birth it again began to fall. During an ensuing pregnancy the hair again returned, but when menstruation was once more established after parturition alopecia again ensued, affecting not only the scalp, but

[1] Proceedings of the Royal Society of Medicine, July, 1912. Obstetrical and Gynæcological Section, July 6th, 1912, p. 342.
[2] Ibid. Dermatological Section, June 20th, 1912, p. 152.

the whole body. The causation of this curious trophic influence is quite obscure, but the relationship of the alopecia to the reproductive process was evidently more than a coincidence, as in the discussion which followed the reading of this paper other dermatologists recorded their observations of similar cases.

THE Bradshaw lecture of the Royal College of Surgeons of England will be delivered in the theatre of the College, by Mr. C. W. Mansell Moullin on Thursday, Dec. 5th next, at 5 o'clock P.M., the subject being the Biology of Tumours

THE DANGERS OF ELECTRICITY FROM THE CLINICAL, FORENSIC, AND HYGIENIC POINTS OF VIEW.[1]

BY M. U. DR. S. JELLINEK,
OF THE UNIVERSITY OF VIENNA.

IN examining the conditions that follow a serious shock from contact with an electric circuit, the fact may be emphasised that the voltage is not the only point to consider; nor is the ampèrage that could be proved to have passed through the victim sufficient as the chief factor. In almost all cases there are several factors, of more or less importance and mutually dependent, contributory to the disastrous result. Circuits of 20,000 volts had been touched without very serious consequences, while accidental contact with only 100 volts had resulted fatally in several instances. Again, it has been stated that one-tenth of an ampère was sufficient to cause death in practically all cases, yet persons have had as much as one ampère passed through the body without a fatal result.

Factors concerned in Electrical Injuries.

The factors necessary for serious injury from contact with an electric circuit might be arranged into two groups. The first, or external, conditions are: the voltage of the circuit, the ampèrage that passed through the victim, the number of poles in contact, and the duration of the contact.

The second, or internal, conditions are: the electrical resistance of the body, the state of mind and body, the path followed by the current, and in experiments on animals of varying susceptibility "the species-factor." Our greatest protection is the skin, and to a lesser extent the clothing. Voltages incapable of doing much harm through dry skin and clothing become dangerous if their resistance is lowered by moisture, such as free perspiration. As all electrical supply circuits have one pole connected to earth, the boots, if not damp through perspiration or wet ground, are a very important protection under ordinary conditions. An accidental shock is more likely to prove serious than one for which the patient is prepared; and naturally bodily disease, especially of the nervous, renal, and circulatory systems, might be the chief factor in determining a fatal result. The psychological factor is of greater importance than most people suppose, and I have recorded a case of sudden death after contact with a high-tension conductor, which was proved to have been at the time of contact unconnected with the source of supply—in fact, "dead." The large and prolonged currents required for electrocution in the State of New York are necessary because the criminal is expecting the shock. The "moment of surprise" is wanting. Also the method of preparing the criminal is such as to conduce to a large leakage of current over the surface of the body, diverting much of the total current from the vital centres.

Local and Constitutional Effects.

Coming to the local effects, the points of entrance and exit of the current are sometimes called "electrical burns," but while these marks resemble heat burns in some respects they are not burns, strictly speaking. An extensive heat burn is painful, does not heal quickly, and is frequently accompanied by suppuration and rise of body temperature. These electrical marks, "specific electrical lesions," are quite painless and heal quickly and without fever or suppuration. Heat burns leave hard contracting scars, whereas the electric lesion is followed by smooth, soft scars that show little or no contraction. The hairs of the surrounding area, also, are not even singed—a further proof that these lesions are not heat burns. The only exception to this is where the part was not in actual contact with the conductor and the current passed to the victim by an arc of very high temperature. Here there would be a heat burn superimposed on the electrical lesion, with pain and injection of the edges if the victim lived even for a few minutes. A peculiar form of lesion consists of an impregnation of the superficial layers of the skin with metallic particles. This has happened when the victim encountered an arc established between metallic conductors. The enormous heat of the arc volatilises the metal, projecting it with such violence that particles might be embedded in the glass of spectacles. As a rule, however, the metallic particles are in the most superficial layers of the skin, which have a red-brown colour and a stiff and mask-like appearance. The condition is not painful, no blisters form, the superficial layers exfoliate, taking the metal with them, and healing is complete after some days. Speaking generally, electric lesions heal readily without pain, and no special or elaborate dressings are necessary.

Constitutional symptoms also are present in all cases except slight local shocks. These are most severe immediately after the accident; the victim might suffer from disturbance of breathing and heart action, and be more or less unconscious according to the severity of the shock. Fortunately, all these symptoms pass off very quickly in the great majority of cases, and recovery is complete in a few days. In a few cases some of the more severe symptoms have persisted and gradually got worse, so that complete disability for work may follow. A moderate proportion of cases show persistence of severe symptoms for some weeks or months, but even here recovery is the rule if the patient is otherwise healthy and free from internal disease.

Importance of Immediate Resort to Artificial Respiration.

The mechanism of death does not appear to follow any fixed rule, as in poisoning by morphine or strychnine. Sometimes the victim does not regain consciousness; in other cases death follows from injury to the respiratory or heart centres, either singly or in combination, with or without unconsciousness.

Stoppage of the heart is the most dangerous symptom, but it is not right to say that the victim is dead merely because no positive evidence of heart's action could be found. Cases have been observed after apparent death of returning consciousness, even to the extent of getting up and walking a few steps before the final collapse. So-called death from electric shock is only an apparent death in the first instance. Physiological death may follow rapidly if the shock has been of exceptional severity, or a few minutes or hours afterwards if proper methods of resuscitation are not applied promptly. This is true whatever the voltage of the circuit or other circumstances attending the accident. It has been proved beyond contradiction that many lives have been lost simply because first aid was not applied promptly. If artificial respiration could be applied instantly in severe electrical shock the proportion of deaths would be very small. This fact should be widely known and all electricians instructed in artificial respiration.

At present, in a severe accident of this kind those present tend to "lose their heads" or to run for assistance. "Sending for the doctor" is all very well if there is some one else to send, but if alone one's first duty is to apply artificial respiration at once and to keep at it until the victim shows signs of returning consciousness or other assistance arrives. Even going to the telephone to summon assistance might make all the difference between a life saved and lost. The freeing of the victim from entanglement or contact with the circuit may be very difficult and even dangerous to the rescuer if proper precautions are not observed, and the greatest difficulty is encountered when the victim has become entangled in a broken telegraph or telephone wire fallen across an overhead wire carrying a high tension current, such as is used for electric tramways. The victim might be pulled away by the clothes, rubber gloves being worn if available, or the rescuer might take off his own coat, insert his hands in the sleeves, and handle the victim in that way, if the voltage of the circuit

[1] Abstract of an address delivered before the Section of Electrotherapeutics, Royal Society of Medicine, on Nov. 15th, 1912.

was not above 800 volts, but at 1000 volts this method begins to be dangerous for the rescuer; in all cases the coat must be dry. Having freed the victim, if respiration is not present, artificial respiration must be started at once, and continued, if necessary, for hours.

Instruction of Workers and Others.

Admitting the advantages of the Schäfer method of artificial respiration, the Silvester method is the better one for general use and instruction to workmen. A victim has been drowned by inhalation into the lungs of the contents of the stomach during the use of the Schäfer method. There is less likelihood of the liver and other internal organs being damaged by the forcible pressure used by workmen if not carefully regulated. On return to consciousness the patient must have absolute rest and quiet, even if his unconsciousness has lasted but a very short time. Under no circumstances should he be allowed to walk about or return to his work, or further loss of consciousness and other serious results might ensue.

The greatest number of electrical accidents happen to electricians from disregard for the ordinary rules of safety and from a familiarity that breeds contempt. Electricians should have periodical lectures, illustrated by pictures on the cinematograph, on the dangers of electricity, their origin and prevention; further, the elementary principles of electricity should be taught to the public, even to school children, so that they may have some idea of the risk attendant on every fitting connected with a source of public supply.

[Dr. Jellinek's address was illustrated with some sixty lantern slides, many of them in colours, and just before the close he showed two cinematograph films which he had prepared at the request of the Austrian Government. These films showed a factory where the approved devices for safety were in use. The different kinds of accident were shown, how they took place, the proper means of freeing the victim from contact with the circuit, also how the accident might have been avoided. The third part illustrated the mechanism of a serious accident from a hanging wire, the disentanglement of the victim, and the proper method of resuscitation.]

THE MUSEUM AT THE SEVENTEENTH INTERNATIONAL MEDICAL CONGRESS, 1913.

A COMMITTEE, with Professor A. Keith, of the Royal College of Surgeons of England, as chairman, has been formed for the purpose of organising a museum in connexion with the Seventeenth International Congress of Medicine, London, 1913. The arrangements have been entrusted entirely to this committee, and it has been invested with the power of acceptance or refusal of any offered exhibit.

It has been recognised that the collection of material illustrative of recent advances in medical science in one centre possesses obvious advantages over the plan of leaving each section separately to collect and house the specimens and other material required by the readers of papers for their communications. A central museum offers to a large number of members of the Congress an opportunity of studying these advances from the available material, and this study is enhanced by the coördination of the various departments.

The committee has drawn up regulations which will govern the museum and is following a plan of procedure. The museum will consist of exhibits illustrating the subjects which will be discussed in the various sections and such other material as the committee may deem of interest or importance. The specimens will embrace the scientific side of medicine, to the exclusion of a commercial element. Excellent accommodation has been secured for the purpose at the Imperial College of Science, South Kensington, and the museum will be arranged in this place as far as is possible in correspondence with the sections of the Congress. The coöperation of the officers of each section has been obtained in order that the collections may be worthy of the occasion. It has further been decided that inasmuch as the meeting is to take place in London, and as the visitors will doubtless desire to inspect the metropolitan hospitals and other great institutions, material will not be collected from the museums of the metropolis. The committee is, therefore, seeking exhibits from provincial and foreign institutions and from private collections.

Medical practitioners and scientists who are willing to place at the disposal of the committee material illustrative of recent advances in any branch of medical science are requested to communicate with the honorary secretary of the museum committee (Mr. H. W. Armit, Ravenhurst, Talbot-road, Wembley).

The committee is prepared to defray the expense of transit of the exhibits and to insure them against damage and loss, and will take every precaution to return them in good condition to their respective owners. Exhibitors will be invited to hold demonstrations in the museum on their own specimens. It may further be pointed out that permission has been obtained from the council of the Congress to keep the museum open for a few days after the Congress has ended, if it be found desirable to do so.

The following is a preliminary list of the subjects to be included in the museum of the Congress:—

1. *Anatomy.*—Dissections; Macroscopical and Microscopical Specimens.
2. *Physiology.*—New Forms of Apparatus (to be shown by physiologists only); Records of Recent Observations; Anatomical Specimens with especial reference to Reciprocal Innervation.
3. *General Pathology.*—Muscular System of the Heart; Grafting of Normal Tissues; The Pathology of Shock.
3a. *Chemical Pathology.*—Pathological Conditions due to the Effect of Diet; Clinical Application of Pathological Chemistry; Chemical Pathology of the Alimentary Tract.
4. *Bacteriology.*—Cancer; Filter Passers; Leprosy; Anaphylaxis.
5. *Pharmacology.*—Non-bacterial Toxins and Antitoxins; The Results of Thermal Treatment.
6. *Medicine.*—Chronic Arthritis; Heart Failure; Diabetes; Hæmolysis.
7. *Surgery.*—Malignant Disease of the Large Intestine; Tumours of the Brain; Intrathoracic Surgery; Arterial Surgery.
7a. *Orthopædics.*—Treatment of Spastic Paralysis; Treatment of Scoliosis; Treatment of Ankylosis; Treatment of Tuberculous Disease of Joints in Childhood.
8. *Obstetrics and Gynæcology.*—Cancer of the Uterus; Hæmorrhage from the Placental Site.
9. *Ophthalmology.*—Chronic Uveitis; Glaucoma Operations.
10. *Diseases of Children.*—Coli Infections of the Urinary Tract; Effect of the Ductless Glands on Development; Surgical Treatment of Tuberculosis in Childhood; Poliomyelitis and Polioencephalitis.
11. *Neuro-Pathology.*—Motor Aphasia, Anarthria, and Apraxia; Tumours of the Brain; The Myopathies; Parasyphilis.
12. *Psychiatry.*—The Psychoses of Infections and Auto-inoculations.
13. *Dermatology and Syphilography.*—Exhibits of this Section will not be included in the General Museum.
14. *Urology.*—Early Renal and Vesical Tuberculosis; Malignant Disease of the Prostate.
15. *Rhinology and Laryngology.*—Neoplasms of the Nose, Accessory Sinuses, and Naso-Pharynx; Rarer Forms of Laryngeal Tumours; Diseases of the Trachea and Bronchi; Broncho-œsophagoscopy.
16. *Otology.*—Exhibits of this Section will not be included in the General Museum.
17. *Stomatology.*—Periodontal Diseases.
18. *Hygiene and Preventive Medicine.*—The Mortality of Infants during the first Four Weeks of Life; Visual Defects in School Children; Diseases of the Lung due to Dust.
19. *Forensic Medicine.*—The Forensic Aspect of Syphilis; The Psychology of Crime.
20. *Naval and Military Medicine.*—Transport of the Wounded in Hill Warfare; Hospital Ships; Water-supplies in the Field; Antityphoid Inoculations; Sanitary Organisation in the Tropics; Caisson Disease.
21. *Tropical Medicine.*—Leishmaniasis; Relapsing Fever; Beri-beri; Plague; Tropical Diseases of the Skin; Filariasis; Worms.
22. *Radiology.*—Technical Advances in Radiography; Radiographs illustrating Diseases of Various Organs, &c.

Special Department.—The Technique of the Museum.

It will be seen that the Committee has taken every pains to include in the programme of exhibits the most interesting and modern pathological phenomena.

MEDICINE AND THE LAW.

Dental Treatment by an Unqualified Person: Robertson v. Hawkins.

IN THE LANCET of July 27th, p. 255, an account was given of a case in which William Hawkins, trading as the Williams Artificial Teeth Institute, was summoned by F. Robertson, a county council teacher, the summons charging him with unlawfully taking and using the name or title "registered dentist." Robertson had to have his teeth attended to and to present a certificate from a registered dentist to that effect to the education authority. He

consulted Hawkins, not knowing that he was an unqualified person, showed him the document given to him by the county council requiring a certificate from a registered dentist, and had from him in reply the statement that he had signed hundreds of such certificates before and would sign one for him when the date arrived at which it would be required. When the certificate was actually asked for it was not forthcoming; no reply was sent to a letter asking whether the complainant had in fact been treated by a registered dentist, but upon his calling at the defendant's premises a return of his money was offered. The facts in connexion with the allegation of using the name or title of registered dentist being practically no more than have been briefly described above, Mr. D'Eyncourt, the magistrate who heard the case at the police court, did not see his way to convict, and obviously the point was one which must present some difficulty. This was felt, and was so stated by the Divisional Court, which, however, on appeal, has reversed the magistrate's decision and sent the case back with a direction to convict. The Lord Chief Justice pointed out that on the form which had been given to Robertson on behalf of the education authority, amounting to an order to him to have his teeth attended to, appeared the words, "Please show this form to the dentist, as only the certificate of a registered dentist can be accepted." Lord Alverstone was of the opinion that although the defendant did not, orally or in writing, use the words "dentist" or "registered dentist," he said, after having been shown the County Council's order referred to, that he would give the certificate, and that he had given such certificates before. This transaction amounted in effect to the prosecutor asking the question, Are you a registered dentist? and receiving an affirmative answer. His lordship suggested that it would have been better if the summons had charged the defendant with using a name or title implying that he was registered, pointing out that the words of the Act, "take or use the name or title of dentist ..... or any name ..... implying that he is registered," were not very clearly applicable to the facts of the case before the court. The same difficulty of applying the Act to the facts was felt by Mr. Justice Channell, but he, with Mr. Justice Avory, was able to concur in the judgment of the Lord Chief Justice with the result stated above. We may point out that medical men and qualified dentists desire that the public should be protected from the dangers of unqualified practice, not by straining existing and obsolete enactments, but by passing better ones suited to modern requirements, and acknowledging the claims of modern science to the fullest possible recognition.

The Case of Seddon.

The trial and conviction of Frederick Henry Seddon for the murder of Eliza Mary Barrow were commented upon in a leading article in THE LANCET of April 20th, p. 1070. Probably no reasonable man after the ten days' trial felt the smallest doubt that Seddon did, in fact, most deliberately and cruelly kill his victim by administering to her, or placing in her way, liquid containing arsenic extracted by him from fly-papers. His possession of fly-papers, his greed, his opportunities, and other circumstances were proved, but the preparation of the poisonous decoction and its conveyance to Miss Barrow were matters of inference. As was pointed out in the article referred to, the evidence of Dr. W. H. Willcox and Dr. B. Spilsbury proved from analysis and observation facts essential to the case for the Crown, and it may be added that in popular terms the scientific evidence "hanged" Seddon. It is to some extent satisfactory to note, in view of the agitation on the part of foolish persons which arises even in the case of the most cruel and clearly proved murders, and which did in fact take place in Seddon's case, that what is apparently a full and candid account of his crime has been published in the *Weekly Dispatch* in the form of an interview with his widow, who was placed on trial with him and acquitted. If we pass over details which may be exaggerated, irrelevant, or not accurately stated, we find her story, which is that of an eye-witness, confirms absolutely that version of the facts which the scientific witnesses for the prosecution laid before the jury—namely, that Seddon obtained arsenic from fly-papers and with it murdered his victim.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.

MEETING OF COUNCIL.

AN ordinary meeting of the Council was held on Nov. 14th, Sir RICKMAN GODLEE, the President, being in the chair.

It was resolved that 89 diplomas of Membership should be granted to successful candidates.

A letter was read from Mr. Edward Dent, thanking the Council for their sympathetic and appreciative resolution regarding his brother, the late Mr. Clinton T. Dent.

At the last meeting of the Council a letter was read from the National Health Insurance Commissioners (England) stating that the question whether resident medical officers and other qualified resident officials at a hospital were employed by the hospital authorities under a contract of service had been submitted to them for a formal decision, and that a hearing would take place on Oct. 22nd, and asking if any representative of the Royal College of Surgeons of England proposed to attend the hearing. The PRESIDENT now reported that he had addressed the following letter to the National Health Insurance Commission (England)[1]:—

Oct. 17th, 1912.

The Council of the Royal College of Surgeons have not had the matter referred to in your letter of the 3rd instant under formal consideration, and do not propose to avail themselves of the opportunity afforded them of sending representatives to give evidence before your committee.

In acknowledging your letter I may, however, point out:

(*a*) That resident medical officers in hospitals naturally fall into two classes: first, those who receive small salaries or merely board and lodging, not because their services are not worth more, but because they discharge their duties for small payment in consideration of the advantage they gain from the instruction they receive in doing so; and, secondly, those who hold more or less permanent appointments and whose salaries exceed the income-tax limit. Neither of these classes, therefore, appear to be employed persons under the meaning of the Act.

(*b*) That, in the case of sickness, it is the invariable custom for such officers to be offered treatment in the hospital to which they are attached, an offer which is, in most cases, taken advantage of. It does not appear to be equitable to exact payment from both parties for that which is voluntarily given by one, and for which the other has to pay nothing.

(*c*) It is practically certain that none of those who receive low salaries, and could, therefore, conceivably be held to be insurable under the Act, would continue such insurance after the completion of their short term of office. The result of including them would, therefore, be that the hospitals would have to pay a perpetual tax in proportion to the number of these officers, who in their turn would have to pay for a few months for what under no circumstances could benefit them.

It must not be forgotten that resident medical officers are most unlikely to join Approved Societies, and at the best, therefore, would only be deposit contributors.

The action of the President was approved and confirmed.

The PRESIDENT reported that the Bradshaw lecture would be delivered by Mr. C. Mansell Moullin on Thursday, Dec. 5th, at 5 o'clock P.M., and that the subject of the lecture would be the Biology of Tumours.

Mr. G. H. Makins was nominated as a member of the Committee of Management of the Schiff House of Recovery, Cobham.

ASYLUM REPORTS.

Kent County Asylum at Chartham Downs, Canterbury (Annual Report for the Year 1911).—The total number under treatment during the year 1911 at this asylum was 1311, the average daily number on the registers being 1045. 300 cases were admitted, and this number is larger than in any previous year. Sixty-eight patients were discharged recovered, the proportion per cent. of recoveries to admissions being 25·43. 138 patients died, the proportion per cent. of deaths to the daily average number resident being 13·27, and to the total number under treatment 10·58. Post-mortem examinations were made in 103 cases.

Hereford County and City Asylum at Burghill (Annual Report for the Year 1911).—The total number under treatment at this asylum was 592, the daily average number being 502. Eighty-two patients were admitted during the year, and of these 23 men and 23 women were admitted for the first time. Of the total admitted, excluding imbeciles, 17·95 per cent. had been ill for less than three months, and 39·53 per cent. between three and six months previous to admission. The more prevalent varieties of mental disorder

[1] See p. 1472 of this issue of THE LANCET.

were: mania, 15 cases; melancholia, 11; delusional insanity, 13; dementia, 16; insanity due to gross brain lesion, 7; and idiocy, 13 cases. Among the attributed causes insane heredity was ascertained in 13·34 per cent. of the total cases, alcoholic intemperance in 14·52 per cent., and senility in 13·76 per cent. Thyroid disease as a contributory cause was assigned in 17 per cent. It appears that in the first attack cases, heredity and congenital mental deficiency were ascertained in 50 per cent. of the admissions. 47 were discharged, and of these 23 were recovered, 21 relieved, and 3 were not improved; the proportion per cent. of recoveries to admissions was 29·1. Of those who recovered 68·5 per cent. were cases in whom the duration of the illness prior to admission had not exceeded three months. The deaths numbered 43, giving a percentage of 8·5 on the daily average number resident. The average age at death was for males 63 and females 66, and 33·6 per cent. males and 48 per cent. females were over 70 years of age. Mr. C. S. Morrison, the medical superintendent, points out that these figures indicate the greater relative paucity there is of able-bodied persons in proportion to asylum population than in almost any other asylum in England and Wales. When the aged and demented are added to the unemployable, though perhaps able-bodied, the margin of self-supporting inmates becomes fewer every year. It would appear that the small number of persons nowadays employable will undoubtedly seriously affect the economies which accrue under the head of "Occupations of Inmates." Post-mortem examinations were made in 31 instances.

Worcestershire Asylum, Barnsley Hall, Bromsgrove (Annual Report for the Year 1911).—The average daily number on the registers during the year was 537. There were admitted 183 patients. The nature of the affections from which the patients were suffering was exceptionally unfavourable with regard to the prospect of recovery, 28 males and 45 females suffering from incurable forms of insanity. Eleven of the cases were over 70 years of age on admission. A family history of insanity or epilepsy was ascertained in 34·7 per cent. of the direct admissions, and of alcoholism in 1·5 per cent. During the year 32 cases were discharged, 21 of these being relieved and 11 recovered, yielding a percentage of 30·7 on the direct admissions. Dr. Percy T. Hughes explains that he has always endeavoured to confine the discharge of patients under the heading "recovered" to those cases who have truly recovered, and who show no obvious permanent mental deficiency, whether this be congenital, and therefore the basis of the acute symptoms, or due to the damaging effects of the acute attack. He considers that a recovery-rate by itself is misleading and of little value unless tested by a parallel table showing the relapse-rate. He has inquired regarding the cases which have been discharged recovered from the asylum since its opening in 1907, and as far as he can ascertain out of 112 recoveries only 12, or 10·7 per cent., have relapsed. Fifty-one deaths occurred during the year, and in all except five post-mortem examinations were held. The percentage of the deaths on the daily average number resident was 9·4.

Mental Hospital for the County Borough of Leicester, at West Humberstone (Annual Report for the Year 1911).—At this asylum the average number resident was 807. The admissions numbered 181, and of these 36 had been previously under treatment. Mental stress was assigned as the principal cause in 45 cases, heredity in 31 cases, and alcoholic excess in 25 cases. Ninety-one cases were discharged, and of these 71 had made a complete recovery, while 9 were relieved, the rate of recovery for the year being 49·65 per cent. There were 67 deaths, and of these 15 persons were over the age of 70. The death-rate was 8·3 per cent. In 59 cases post-mortem examinations were held.

Nottingham City Asylum at Mapperley Hill (Annual Report for the Year 1911).—The average number resident at this asylum for the year was 859. The admissions numbered 208. The increase in the number admitted was the largest that there has been for several years, and appears to have been due chiefly to the increased admission rate amongst the females. A very large proportion of the cases admitted held out but small hope of recovery. Out of 91 males admitted during the year no fewer than 45 were suffering from conditions of the brain which made recovery impossible. On the other hand, of only 20 out of the 117 females admitted could the same be said. The principal causes attributed were: alcoholic excess, 23 per cent.; mental stress, 18·8 per cent.; and hereditary predisposition, 16·7 per cent. The discharges numbered 86, and of these 73 had recovered. The percentage of recoveries was 38·21 of the direct admissions. There were 80 deaths during the year, and in 78 cases post-mortem examinations were held. General paralysis was the cause of death in 22 cases, other diseases of the brain in 11 cases, tuberculosis in 11 cases, and heart disease in 12 cases. The percentage of deaths to the average number resident was 9·31. The new buildings of the asylum were occupied early in the year. The villa for males affords pleasant accommodation for the most trustworthy men who appreciate their freedom from locked doors and night supervision. In connexion with the infirmary wing every advantage is taken of the verandah for the open-air treatment of phthisical cases and of many acute mental cases. The short experience of the method already affords evidence of the great benefit of this mode of treatment.

Cumberland and Westmorland Lunatic Asylum (Annual Report for the Year 1911).—On the first day of the year there were at this asylum 842 patients, and on the last day of the year 834. During the year 153 patients were admitted, being the lowest number during the last 20 years. Thirty-six of those admitted had been previously under care in this asylum; 33 of these had recovered at the time of their last discharge, and the average time that these had remained away from the asylum was four years and five months. Hereditary predisposition was attributed as a factor in causation in 44 cases and alcohol in 17 cases. Dr. W. F. Farquharson, the medical superintendent, writes that alcoholic excess does not of itself cause insanity unless the individual addicted to it has by inheritance an unstable nervous system; in many cases the drinking habits are the sign of a defective brain constitution with lessened self-control rather than the cause of the mental breakdown. Ninety-one patients were discharged during the year, 75 as recovered. The recovery rate was 51 per cent., calculated on the direct admissions. Of those who recovered, 20 were under treatment in the asylum for less than three months, 26 from three to six months, 7 from six to nine months, 8 from nine to 12 months, and 14 for more than a year. 50 per cent. of those who recovered were brought to the asylum within a fortnight of the onset of the attack and 80 per cent. were brought within three months, indicating that the earlier treatment commences the greater are the chances of recovery. Deaths numbered 70, the rate being the low one of 8·8 per cent. on the daily average number resident. Five of those who died had been in the asylum for over 20 years, and one of them had been admitted to the asylum when it was opened 50 years ago. In every case a post-mortem examination was held.

Roxburgh, Berwick, and Selkirk District Asylum (Annual Report for the Year ending May 15th, 1912).—The total number of cases under care during the year at this asylum was 387, the average daily number resident being 311·4. Sixty-two patients were admitted during the year, of whom 29 per cent. had been previously under treatment in this asylum, the period of absence from the asylum ranging from 14 years to four months, and the average period of absence being four years and two months. Among the admissions, hereditary predisposition to mental disorder was ascertained to exist in 26 cases. In 8 per cent. of the cases the physical condition of the patients was good, while in 82 per cent. it was bad, and in 10 per cent. very bad. Thirty-seven patients were discharged, and of these 30 had recovered, the recoveries on the admissions giving a proportion of 48·3 per cent. Of the 30 recoveries, 25 were cases in which the mental disorder was of less than three months' duration on the patient's admission into the asylum; two in which it was from 3–6 months, one from 6–9 months, and two from 9–12 months. The length of residence in the asylum of the patients who recovered was less than three months in 13 cases, from 3–6 months in seven cases, from 6–9 months in four cases, from 9–12 months in one case, from 12–15 months in four cases, and four years in one case. The deaths numbered 26, the rate calculated on the average number on the registers being 8 per cent. The periods of residence in the asylum ranged from three days to 42 years. In 73 per cent. of the cases post-mortem examinations were held. Dr. J. Carlyle Johnstone, the medical superintendent, writes in his report that although the Asylums Officers' Superannuation Act has

only been authorised for two years, already two Bills are before the House of Commons for its amendment. In order to secure the great boon of assured and definite pensions for all workers in rate-supported asylums, the promoters of the original measure were compelled during its passage through Parliament to assent to certain conditions which a very brief experience has proved to entail serious hardships on persons for whose benefit the Act was intended. Many difficulties have arisen, moreover, in the interpretation and administration of the Act, owing largely to its obscure and sometimes conflicting phraseology. Dr. Johnstone reviews and criticises the Bills now before the House of Commons, supporting the Bill entitled The Asylums Officers' Superannuation Bill introduced by Sir Charles Nicholson.

Dorset County Asylum (Annual Report for the Year 1911).—The average daily number on the registers at this asylum was 888. 182 cases were admitted during the year. Of the county cases admitted 69, or 54 per cent., were cases under one or other of the different types of mania, whereas but 15, or 11 per cent., were of the type associated with depression. Eighty-three cases were discharged. Of the 57 cases discharged recovered, 26 recovered in less than six months, and 18 within 12 months. The percentage of recoveries among the private patients for 1911 was no less than 50 per cent. Eighty-four persons died during the year.

West Riding Asylum at Wakefield (Annual Report for the Year 1911).—The total number under treatment at this asylum during the year was 2594, the average daily number on the registers being 2023. 557 cases were admitted during the year, 64 per cent. of the males and 54 per cent. of the females being regarded as incurable. 318 patients were discharged, and of these 97 were recovered. The recovery rate, based on the total admissions, amounts in the case of the males to 11·66 and in that of the females to 24·12, the combined rate being 17·41, or, if transfers be excluded, 20·29. The deaths numbered 253, the rate, estimated on the average number resident, being 12·50 for both sexes. Post-mortem examinations were conducted on 230 of the deaths. General paralysis occurred in 73 cases, tuberculosis in 52, and dysentery in 17 cases. Dr. J. S. Bolton, the medical superintendent, reports that during a large part of the summer upwards of 100 patients spent the day in bed out of doors, and upwards of 1000 left the wards directly after breakfast, and only returned indoors at bedtime. The results exceeded the highest expectations. The wards, instead of being close and stuffy, became relatively healthy and hygienic. The patients were quiet and orderly, and the turbulent cases showed relatively little excitement. The amount of sedative medicine required became much smaller, and the general health of the inmates much more satisfactory. The committee has appointed a bacteriologist as whole-time pathologist. New and more elaborate post-mortem examination records, which include the systematic examination of the convolutional pattern and also photographs of the brains, have been introduced.

Lincolnshire County Asylum at Kesteven (Annual Report for the Year 1911).—The average daily number on the registers at this asylum was 450. Seventy-eight cases were admitted, and in only 29 of these was the prognosis considered to be in any way favourable. The bodily condition of 30 was either frail and feeble or much run-down, and in the case of only 14 was it classified as good. Thirty-four patients were discharged, and of these 22 had recovered, giving a percentage of 31 on the direct admissions. Of those who recovered, 12 were in residence for a less period than six months and 9 for less than a year. In all of these the duration of the attack prior to admission was less than three months. The deaths numbered 42, giving a percentage of 9·33 on the average number resident.

LITERARY INTELLIGENCE.—Messrs. Williams and Norgate announce that His Majesty the King has honoured the Right Hon. Robert Farquharson, M.D., by accepting a copy of his new volume entitled "The House of Commons from Within."

IN the rooms of the Royal Asiatic Society, 22, Albemarle-street, W., on Tuesday, Nov. 26th, Miss B. L. Hutchins will read a paper before the Sociological Society on "Fatigue and Efficiency." The chair will be taken at 5.15 P.M. by Sir William Mather.

Public Health.

REPORTS OF SCHOOL MEDICAL OFFICERS.

Borough of Cambridge.—The report of Dr. Andrew J. Laird is sent out bound up with that of Mr. William H. Jones, the borough dentist, who conducts dental inspection in the schools and treatment in the well-known dental clinic. It is desirable to have the importance of treatment emphasised in this way, and doubtless in the future an account of methods of treatment will take up more and more space in the school doctor's report. Some curious facts emerge from Dr. Laird's report: firstly, that the premises of many of the schools can only be fitly described as primitive; and, secondly, that there is a large percentage of refusals to allow children to be examined. The percentage was as high as 30·7 per cent. in 1910, but has sunk to 12·2 per cent. in 1911. Nevertheless, this percentage is enormous. It is suggested that the refusals really depend on the children, who have been overheard saying to one another: "Are you going to be done? No; then I won't." The report suggests that "in these days, when parents allow themselves to be entirely controlled by their children," it is desirable to find out whether the objection springs from the parent or from the child. But the curious point is that this very high percentage of refusals (possibly the highest in England) comes from a university town. Children with ringworm of the scalp have been allowed to attend school if ointment is used daily and a bag provided for the hat. But some cases have latterly been excluded on the ground of not being adequately treated, and for others "ointment record papers" were instituted. These are papers, ruled for a month and marked when the register is marked. If ointment has not been applied to the head the child is sent home at once. Each month the paper is sent up to the medical officer, who can then judge of continuity of treatment. The attention thus directed to the matter has led to more regular treatment. Twelve cases were treated by X rays at Addenbrooke's Hospital, but the method was not popular. One parent preferred a phrenologist and another gave a child "ringworm tablets." The report of the dental clinic is very interesting reading, and the results of treatment are marked. At the first examination in 1907, before any treatment, only 15 per cent. of the children had all their permanent teeth sound; at the end of 1911 over 70 per cent. had their permanent teeth free from caries. Mr. Jones suggests that it may, "as a subsequent development, be still further necessary, by means of the establishment of a dental dispensary, to take steps that young persons are not shut out from the benefits of dental treatment after being trained to appreciate its advantages."

Cambridgeshire County Council.—It appears from this report that while the school buildings have many defects, including in 55 out of 112 schools absence of water-supply, yet they are in many ways better than the school buildings in the borough itself. The arrangements for treatment of defects are not considered satisfactory; the 50 guineas subscription to Addenbrooke's Hospital and the issue of letters of recommendation in exchange have enabled some cases to be treated, but there is difficulty in working the system. A small voluntary dental clinic was started at Stapleford and Shelford during the year under the control of Mr. A. W. Gant, and successfully demonstrated the need for, and possibility of, rural dental clinics. Most of the parents seem very anxious to accept the treatment offered for their children. From May to December, 1911, 51 children were provided with spectacles at an average of 1*s.* 10*d.* per child.

Cumberland County Council.—Dr. F. H. Morison finds it useful to not only examine children of definite age groups and "specials," but also to inspect a parade of the whole school so as to pick out any obviously neglected or ailing children. This excellent procedure, which tends to drop out owing to the press of routine work, might very well be made a part of that routine. The report complains of the bad ventilation of some of the class-rooms, the bad light, and the wrong position of the light. "Even now," we are told, "it is not an uncommon experience to find classes, even infant classes, sitting facing a strong light." In one district five prosecutions were instituted under Section 12 of the Children Act for neglect of cleanliness. The first case was

heard and proved when the chairman gave a grave warning, let it be known that a penalty of £25 or imprisonment for six months had been incurred, and finally dismissed the cases because they were the first. The effect of the prosecution, and the publicity given to it, is stated to have done much good. The opinion is expressed, contrary to that of many school doctors, that pulmonary tuberculosis is of frequent occurrence among children. Among 14,326 children examined in 1909 and 1910, 2·9 per cent. were affected with pulmonary tuberculosis; in 1911 among 6398 children 2·2 per cent. were so affected. 4195 of these were urban children and 2203 were rural. Among the urban children 1·8 per cent. of the boys were affected and 3·0 per cent. of the girls; among the rural children 2·3 per cent. boys and 2·5 per cent. girls The method of diagnosis was "careful physical examination."

VITAL STATISTICS.

HEALTH OF ENGLISH TOWNS.

In the 95 largest English towns, with an aggregate population estimated at 17,639,881 persons at the middle of this year, 8138 births and 4761 deaths were registered during the week ended Saturday, Nov. 16th. The annual rate of mortality in these towns, which had been 13·3, 14·0, and 14·8 per 1000 in the three preceding weeks, declined to 14·1 per 1000 in the week under notice. During the first seven weeks of the current quarter the mean annual death-rate in these large towns averaged 13·8 per 1000, against 14·7 in London during the same period. The death-rates in the several towns last week ranged from 5·0 in Ilford, 5·5 in Wimbledon, 5·8 in Eastbourne, 6·9 in Acton, and 7·1 in Swindon, to 20·2 in Merthyr Tydfil, 20·9 in South Shields, 22·2 in West Ham, 22·3 in Lincoln, and 23·1 in Aberdare.

The 4761 deaths from all causes in the 95 towns were 238 fewer than the number in the previous week, and included 513 which were referred to the principal epidemic diseases, against numbers rising from 421 to 510 in the three preceding weeks. Of these 513 deaths, 293 resulted from measles, 85 from infantile diarrhœal diseases, 52 from diphtheria, 41 from whooping-cough, 27 from scarlet fever, 14 from enteric fever, and 1 from small-pox. The mean annual death-rate from these epidemic diseases last week was equal to 1·5 per 1000, against 1·3 and 1·5 in the two preceding weeks. The deaths attributed to measles, which had steadily increased from 67 to 296 in the seven preceding weeks, slightly declined to 293 last week, and caused the highest annual death-rates of 2·7 in Birmingham and in St. Helens, 2·9 in Middlesbrough, 3·3 in South Shields and in Newcastle-on-Tyne, 3·6 in Lincoln, 3·9 in West Ham, 4·0 in Stockton-on-Tees and in Preston, and 4·1 in West Hartlepool. The deaths of infants under 2 years of age referred to diarrhœa and enteritis, which had been 103, 107, and 82 in the three preceding weeks, were 85 last week, and included 28 in London and its suburban districts, 7 in Liverpool, 5 in Nottingham, and 4 each in Portsmouth, in Stoke-on-Trent, in Manchester, and in Sheffield. The fatal cases of diphtheria, which had been 48, 43, and 52 in the three preceding weeks, were again 52 last week; 9 deaths were recorded in London, 5 in Portsmouth, 4 in Birmingham, 3 in Liverpool, and 3 in Manchester. The deaths attributed to whooping-cough, which had declined from 40 to 30 in the three preceding weeks, rose to 41 last week, and included 11 in London, 4 in Cambridge, 4 in Liverpool, and 3 in Birmingham. The deaths referred to scarlet fever, which had been 21, 24, and 32 in the three preceding weeks, fell to 27 last week; of this number 9 occurred in London, 4 in Birmingham, 2 in Newcastle-on-Tyne, and 2 in Aberdare. The fatal cases of enteric fever, which had been 20, 15, and 18 in the three preceding weeks, declined to 14 last week; 3 deaths were registered in London and 3 in Hull. The death from small-pox was recorded in Wolverhampton.

The number of scarlet fever patients under treatment in the Metropolitan Asylums and in the London Fever Hospital, which had steadily increased from 1512 to 2350 in the 12 preceding weeks, had slightly declined to 2335 on Saturday last; 254 new cases of this disease were admitted to these hospitals during the week, against 283, 279, and 326 in the three preceding weeks. These hospitals also contained on Saturday last 909 cases of diphtheria, 680 of measles, 242 of whooping-cough, and 45 of enteric fever, but not one of small-pox. The 1250 deaths from all causes in London were 2 fewer than the number in the previous week, and were equal to an annual death-rate of 14·4 per 1000 persons living. The deaths referred to diseases of the respiratory system, which had been 240, 274, and 227 in the three preceding weeks, rose to 243 last week, and were 19 in excess of the number recorded in the corresponding week of last year.

Of the 4761 deaths from all causes in the 95 towns last week, 174 resulted from different forms of violence and 420 were the subject of coroners' inquests. The causes of 40, or 0·8 per cent., of the total deaths were not certified either by a registered medical practitioner or by a coroner after inquest. All the causes of death were duly certified in London and its 14 suburban districts, in Sheffield, Bristol, Bradford, Hull, Newcastle-on-Tyne, Nottingham, and in 53 other smaller towns. The 40 uncertified causes of death included 11 in Birmingham, 3 in Liverpool, in St. Helens, and in Gateshead, and 2 in Southend-on-Sea, in Bury, and in Manchester.

HEALTH OF SCOTCH TOWNS.

In the 18 largest Scotch towns, with an aggregate population estimated at 2,182,400 persons at the middle of this year, 1055 births and 683 deaths were registered during the week ending Saturday, Nov. 16th. The annual rate of mortality in these towns, which had been 14·4, 16·1, and 15·4 per 1000 in the three preceding weeks, rose to 16·3 per 1000 in the week under notice. During the first seven weeks of the current quarter the mean annual death-rate in these Scotch towns averaged 14·6 per 1000, against 13·8 in the 95 large English towns during the same period. Among the several Scotch towns the death-rates last week ranged from 5·9 in Coatbridge, 10·3 in Clydebank, and 10·6 in Hamilton, to 17·8 in Aberdeen, 19·9 in Greenock, and 22·7 in Dundee.

The 683 deaths from all causes were 37 in excess of the number in the previous week, and included 37 which were referred to the principal epidemic diseases, against 47 and 43 in the two preceding weeks. Of these 37 deaths, 11 resulted from whooping-cough, 10 from infantile diarrhœal diseases, 6 from enteric fever, 6 from diphtheria, 2 from measles, and 2 from scarlet fever, but not one from small-pox. These 37 deaths from the principal epidemic diseases were equal to an annual death-rate of 0·9 per 1000, against 1·5 per 1000 in the 95 large English towns. The deaths attributed to whooping-cough, which had been 8, 14, and 8 in the three preceding weeks, rose to 11 last week, and included 3 in Glasgow, 2 in Edinburgh, 2 in Aberdeen, and 2 in Govan. The deaths of infants under two years of age referred to diarrhœa and enteritis, which had been 16, 16, and 12 in the three preceding weeks, further declined to 10 last week; 5 deaths were registered in Glasgow, 2 in Dundee, and 2 in Govan. The fatal cases of enteric fever, which had been 1 and 5 in the two preceding weeks, rose to 6 last week, and comprised 3 in Aberdeen, 2 in Greenock, and 1 in Glasgow. The deaths attributed to diphtheria, which had been 12, 9, and 8 in the three preceding weeks, further declined to 6 last week; 5 deaths occurred in Glasgow and 1 in Dundee. The 2 deaths attributed to scarlet fever were recorded in Glasgow, and the 2 fatal cases of measles in Dundee and Falkirk respectively.

The deaths referred to diseases of the respiratory system in the 18 Scotch towns, which had been 105, 139, and 127 in the three preceding weeks, rose to 162 in the week under notice; 19 deaths were attributed to different forms of violence, against 35 and 24 in the two previous weeks.

HEALTH OF IRISH TOWNS.

In the 22 town districts of Ireland, having an aggregate population estimated at 1,154,150 persons at the middle of this year, 536 births and 377 deaths were registered during the week ending Saturday, Nov. 16th. The annual rate of mortality in these towns, which had been 17·8, 18·3, and 17·9 per 1000 in the three preceding weeks, declined to 17·0 per 1000 in the week under notice. During the first seven weeks of the current quarter the mean annual death-rate in these Irish towns averaged 17·2 per 1000; in the 95 large English towns the corresponding death-rate did not exceed 13·8, while in the 18 Scotch towns it was equal

to 14·6 per 1000. The annual death-rate in the several towns last week was equal to 18·7 in Dublin (against 14·4 in London), 16·1 in Belfast, 15·6 in Cork, 10·2 in Londonderry, 35·2 in Limerick, and 19·0 in Waterford, while in the remaining 16 smaller towns the mean rate did not exceed 13·2 per 1000.

The 377 deaths from all causes in the 22 Irish towns were 19 fewer than the number in the previous week, and included 40 which were referred to the principal epidemic diseases, against 65 and 39 in the two preceding weeks. Of these 40 deaths, 23 resulted from measles, 1 from diarrhœal diseases, 3 from whooping-cough, 1 from enteric fever, 1 from scarlet fever, and 1 from diphtheria, but not one from small-pox. These 40 deaths from the principal epidemic diseases were equal to an annual death-rate of 1·9 per 1000; the death-rate from these diseases last week was equal to 1·5 per 1000 in the 95 large English towns, while in the 18 Scotch towns it did not exceed 0·9 per 1000. The deaths attributed to measles, which had been 19, 36, and 23 in the three preceding weeks, were again 23 last week, and comprised 12 in Limerick, 9 in Belfast, and 2 in Dundalk. The deaths referred to diarrhœa and enteritis, which had been 5, 14, and 5 in the three preceding weeks, rose to 11 last week, all of which related to infants under two years of age; 4 deaths were registered in Belfast, 3 in Dublin, and 2 in Limerick. The 3 fatal cases of whooping-cough, comprising 2 in Dublin and 1 in Belfast, were equal to the average in the four preceding weeks. The fatal cases of scarlet fever and diphtheria were recorded in Belfast, and that of enteric fever in Dublin.

The deaths referred to diseases of the respiratory system, which had been 78, 74, and 93 in the three preceding weeks, declined to 83 in the week under notice. Of the 377 deaths from all causes, 102, or 27 per cent., occurred in public institutions, and 13 resulted from different forms of violence. The causes of 15, or 4·0 per cent., of the total deaths were not certified either by a registered medical practitioner or by a coroner after inquest; in the 95 large English towns the proportion of uncertified causes of death last week did not exceed 0·8 per cent.

THE SERVICES.

ROYAL NAVY MEDICAL SERVICE.

IN accordance with the provisions of Order in Council of April 1st, 1881, the following officers have been placed on the Retired List:—Deputy Surgeon-General Frederick John Lilly at his own request, with permission to assume the rank of Surgeon-General (dated Nov. 15th, 1912). Fleet-Surgeon Edward Robert Drummond Fasken (dated Nov. 17th, 1912).

The following appointments have been notified:—Fleet-Surgeons: J. A. Keogh to the *Princess Royal*, on commissioning; M. L. M. Vaudin to the *Cochrane*; and H. P. Jones to the *Conqueror*, on commissioning. Staff-Surgeons: P. L. Crosbie to the *Vivid*, additional, for the *Conqueror*, for trials, and to the *Conqueror*, on commissioning; M. Cameron to the *Formidable*, on the *Conqueror* commissioning; F. C. B. Gittings to the *Apollo*; A. F. Fleming to the *Victory*, additional, for disposal, and to the Royal Marine Division, Portsmouth; and W. L. Hawkins to the *Pegasus*, on recommissioning. Surgeon: M. M. Melrose to the *Princess Royal*, on commissioning.

ARMY MEDICAL SERVICE.

Colonel Robert I. D. Hackett retires on retired pay (dated Nov. 13th, 1912).

ROYAL ARMY MEDICAL CORPS.

The undermentioned Captains to be Majors (dated Nov. 14th, 1912): Walter J. Walters, Henry F. Shea, Frederick A. Stephens, Edgar F. Q. L'Estrange, and Thomas B. Unwin.

Brevet-Colonel Charles H. Melville, from the supernumerary list, is restored to the establishment, vice Lieutenant-Colonel W. W. O. Beveridge, D.S.O., supernumerary (dated Nov. 1st, 1912).

Colonel E. J. E. Risk, late Commandant and Director of Studies at the Royal Army Medical College, has been granted leave of absence on medical certificate.

Lieutenant-Colonel G. Cree has taken up duty as Assistant Director of Medical Services at Bordon (Aldershot Command), in succession to Colonel C. R. Tyrrell. Lieutenant-Colonel A. A. Sutton, D.S.O., senior medical officer, Sierra Leone Protectorate, has arrived home on leave of absence from West Africa. Lieutenant-Colonel T. Daly, on arrival home, tour expired from India, has been appointed to the Western Command for duty. Lieutenant-Colonel O. R. A. Julian, C.M.G., has been appointed to the Directing Staff for a staff tour to be held in the Irish Command at Rostrevor from Dec. 2nd next.

Major B. F. Wingate has been transferred from Wellington to Bellary, Madras Presidency, and appointed to command the Station Hospital. Major J. H. Brunskill, specialist in bacteriology at the Curragh Camp, has been selected for appointment as Specialist Sanitary Officer to the Dublin District, in succession to Major D. J. Collins, who has been placed under orders for a tour of service in India. Major J. W. Leake has arrived home on leave of absence from the Sierra Leone Protectorate. Major H. H. Norman has been appointed for duty in the Eastern Command on completion of a tour of service in Burma. Major E. B. Steel has been selected for appointment as Senior Medical Officer on board the transport s.s. *Hardinge*, leaving Karachi for Southampton on Nov. 30th. Major S. O. Hall has embarked for a tour of service in India, and on arrival will be appointed for duty with the Northern Army. Major A. W. N. Bowen has been selected for appointment to command the Military Hospital at Kirkee. Major G. Baillie has taken over charge of the Military Hospital at Wilberforce, West Africa. Major J. M. Cuthbert has taken up duty as Clinical Pathologist at Edinburgh. Major F. W. Hardy has relinquished his appointment as Specialist Sanitary Officer to the Colchester District and embarked for a tour of service in India. Major C. F. Wanhill has been appointed Deputy Assistant Director of Medical Services (Sanitary) to the Fifth (Mhow) Division, in succession to Major N. Faichnie, whose tenure of the appointment has expired. Major S. W. Sweetnam has been transferred from the Military Hospital at Kirkee to the Aden Brigade.

Captain M. F. Leahy, medical officer to the Ordnance Factory at Kirkee, has been granted leave of absence for six months home from India. Captain H. L. Howell has been selected for appointment as a Specialist in the Prevention of Disease and placed in charge of the Brigade Headquarters Bacteriological Research Laboratory at Ahmednagar, Bombay Presidency. Captain J. A. Bennett has been transferred from the Military Hospital at Bombay to Poona Cantonment for duty. Captain G. F. Dawson has been appointed Medical Officer to the Rifle Camp at Meerut on transfer from the Military Hospital at Agra. Captain A. H. Jacob has arrived home for duty from India at the expiration of his tour of foreign service. Captain J. B. G. Mulligan has been appointed for duty to the Southern Command. Captain J. R. Lloyd has been detailed for duty on board the transport s.s. *Dufferin*, which left Bombay for Southampton on Nov. 21st; this officer proceeds on six months' leave of absence from date of disembarkation granted by H.E. the Commander-in-Chief in India. Captain C. H. O'Rorke has been transferred from the Military Hospital at Bareilly to the Military Hospital at Roorkee. Captain A. W. A. Irwin has been selected for appointment as Embarkation Medical Officer at Gibraltar. Captain J. G. Foster has been transferred from the Ninth (Secunderabad) Division to the Sixth (Poona) Division. Captain M. F. Foulds, specialist in surgery to the Belfast District, and Captain B. H. V. Dunbar have been directed to take part in a staff tour for medical services to be held at Rostrevor, county Down, on Dec. 2nd next. Captain H. J. Crossley has been appointed to hold charge of the Military Hospital at Richmond, York. Captain F. W. W. Dawson has taken up duty in charge of the Brigade Headquarters Bacteriological Research Laboratory at Kasauli. Captain M. F. Grant has been appointed Adjutant of the First (London) Division, School of Instruction, Royal Army Medical Corps. Captain D. De C. O'Grady has been appointed to hold charge of the Military Hospital at Barian and as Specialist in Dermatology and Venereal Diseases to the Second (Rawal Pindi) Division. Captain F. A. H. Clarke, recruiting medical officer at Glasgow, has been placed under orders to embark for a tour of service in India, and on arrival will be appointed for duty in the Third (Lahore) Division of the Northern Army.

Lieutenant R. F. Bridges has embarked for a tour of duty in India.

INDIAN MEDICAL SERVICE.

The King has approved of the promotion of the following officers of the Indian Medical Service:—Lieutenant-Colonel to be Colonel (dated August 25th, 1912): Blenman Buhot Grayfoot. Major to be Lieutenant-Colonel (dated July 27th, 1912): Hubert Malins Earle.

The promotions of the undermentioned officers to their present ranks are antedated as follows:—Major George McPherson, from Jan. 28th, 1910, to July 28th, 1909. Captain Richard Edward Flowerdew, from March 26th, 1912, to Jan. 30th, 1912. Captain Berkeley Gale, from Jan. 31st, 1912, to Jan. 30th, 1912.

H.E. the Viceroy and Governor-General of the East Indies has selected Colonel A. O. Evans, at present officiating as Deputy-Director of Medical Services, Second (Rawal Pindi) Division, to officiate as Inspector-General of Civil Hospitals in Burma, in succession to Colonel H. StClair Carruthers, who has been granted leave of absence.

Lieutenant-Colonel J. G. Hulbert, on completion of special duty at the Central Research Institute, Kasauli, has joined at Muttra as Civil Surgeon. Lieutenant-Colonel C. Mactaggart, C.I.E., on completion of leave of absence, has taken up duty as Inspector-General of Prisons in the United Provinces of Agra and Oudh. The services of Lieutenant-Colonel E. R. W. C. Carroll, civil surgeon in Assam, have been replaced at the disposal of the Home Department of the Government of India. Lieutenant-Colonel H. S. Wood, civil surgeon at Rajshahi, has been appointed to officiate as a Civil Surgeon of the First Class, in succession to Major E. C. MacLeod, granted leave of absence. H.E. the Governor of Bombay in Council has appointed Lieutenant-Colonel J. Crimmin, V.C., C.I.E., to officiate as Health Officer of the Port of Bombay during the absence on leave of Lieutenant-Colonel W. E. Jennings.

Major J. C. S. Oxley, civil surgeon at Chanda, has been appointed to hold Executive and Medical Charge of the Chanda District Jail. Major J. W. Grant, residency surgeon in the Western States of Rajputana, has been appointed to hold charge of the current duties of the office of Resident in the Western States of Rajputana until further orders. H.E. the Commander-in-Chief in India has selected Major G. Bidie for appointment as Specialist in Advanced Operative Surgery to the Sixth (Poona) Division. Major P. F. Chapman, civil surgeon at Jubbulpore, has been granted privilege leave of absence home from India for three months, combined with furlough for six months, and study leave for nine months. Major F. S. C. Thompson has taken over charge of the Juvenile Jail at Alipore. Major S. H. Burnett has taken up duty as Marine Surgeon at Colaba. Major E. F. Gordon-Tucker has been appointed to officiate as Presidency Surgeon of the Third District in Bombay City. Major G. Hutcheson, civil surgeon at Aligarh, has been appointed to hold Civil Medical Charge of the Bulandshahr District during the leave on absence of Major R. Steen.

Captain A. Cameron, at present officiating as civil surgeon at Rae Bareli, has been appointed to officiate as Superintendent of the Central Prison at Benares in succession to Captain C. E. Palmer, granted leave of absence. Captain H. B. Steen, first resident surgeon at the Presidency General Hospital, Calcutta, has been granted privilege leave of absence, combined with study leave and furlough for one year and seven months. Captain J. R. J. Tyrrell has been confirmed in the appointment of a Second-class Agency Surgeon. Captain W. T. Finlayson has been appointed Superintendent of the Borstal Central Jail at Lahore *sub. pro tem.* The services of Captain A. Whitmore have been placed permanently at the disposal of the Government of India. Captain G. F. I. Harkness has been appointed to officiate as Civil Surgeon at Dhulia in succession to Captain J. Smalley, granted leave of absence. Captain F. N. White has been appointed to hold charge of the current duties of the office of Director of the Bombay Bacteriological Laboratory. Captain T. C. Rutherfoord, civil surgeon at Bilaspur, has been appointed to hold Executive and Medical Charge of the Bilaspur District Jail. Captain J. B. Lapsley has been appointed to the substantive Medical Charge of the 26th Punjabis. Captain M. R. C. MacWatters has been permitted to extend his leave of absence home from India for a further three months. Captain F. P. Wernicke, officiating civil surgeon at Chanda, has been transferred to Nagpur and placed on general duty. Captain S. H. Lee Abbott, civil surgeon at Ferozopore, has been granted privilege leave of absence for one month. The services of Captain R. Markham Carter have been placed temporarily at the disposal of the Government of Bombay.

H.E. the Commander-in-Chief in India has selected Lieutenant H. S. Cormack for appointment as Specialist in Ophthalmology to the Second (Rawal Pindi) Division of the Northern Army.

SPECIAL RESERVE OF OFFICERS.

Royal Army Medical Corps.

Lieutenant John R. Hayman is confirmed in his rank.

Cadet-Sergeant William Tyrrell, from the Belfast University Contingent, Officers Training Corps, to be Lieutenant (on probation) (dated Oct. 18th, 1912).

TERRITORIAL FORCE.

Royal Army Medical Corps.

North Midland Mounted Brigade Field Ambulance, Royal Army Medical Corps: Lieutenant Arthur C. Goodwin to be Captain (dated August 22nd, 1912).

1st London (City of London) Field Ambulance, Royal Army Medical Corps: Eric Gerald Gauntlett to be Lieutenant (dated Oct. 28th, 1912).

2nd London (City of London) Field Ambulance, Royal Army Medical Corps: Lieutenant Reginald E. Bickerton to be Captain (dated Oct. 13th, 1912).

2nd North Midland Field Ambulance, Royal Army Medical Corps: Alfred Charles Foster Turner to be Lieutenant (dated Oct. 20th, 1912).

4th London General Hospital, Royal Army Medical Corps: Lieutenant-Colonel Albert B. Barrow resigns his commission (dated Nov. 16th, 1912).

The undermentioned Majors to be Lieutenant-Colonels (dated Nov. 16th, 1912):—Sir William W. Cheyne, Bart., Norman Dalton, George R. Turner.

The undermentioned Captains to be Majors (dated Nov. 16th, 1912):—Walter G. Spencer, William A. Turner, Albert Carless, James Galloway.

4th Scottish General Hospital, Royal Army Medical Corps: Major Archibald Young, from the 1st Lowland Field Ambulance, Royal Army Medical Corps, to be Major, whose services will be available on mobilisation (dated Sept. 24th, 1912).

2nd London Sanitary Company, Royal Army Medical Corps:—Lieutenant Arthur J. Martin to be Captain (dated Oct. 26th, 1912).

Attached to Units other than Medical Units.—Lieutenant Donald S. Sutherland to be Captain (dated Sept. 30th, 1912). William Tyler Gardiner to be Lieutenant (dated Oct. 24th, 1912). Major Cecil E. Stephens resigns his commission, and is granted permission to retain his rank and to wear the prescribed uniform (dated Nov. 16th, 1912).

SPECIAL PROMOTION.

The King has approved the following promotion in recognition of the services of the undermentioned officer on the occasion of the attacks made upon a detachment of the 39th King George's Own Central India Horse, near Kazarun, in Persia, in December, 1911 (dated August 29th, 1912):—*Brevet:* Captain William Thomas McCowen, Indian Medical Service, to be Major.

ARCHIV FÜR SCHIFFS- UND TROPEN-HYGIENE.

Dr. V. Schilling-Torgau reports a rapidly fatal case of malaria, in the blood of which nucleated normoblasts and erythroblasts were seen, of which 3 per cent. contained one or two parasites. He submits that the infection of these young cells is a grave prognostic. Professor Dr. Reinhold Ruge, Surgeon-General of the German Navy, of Kiel, draws attention to the world distribution and mortality of small-pox, tubercle, and typhoid, and the duty laid on civilised states to prevent them in their colonies and protectorates. He hopes that tubercle may be prevented from entering German South-West Africa, in which, at present, it does not occur at all. Dr. R. O. Neumann (Giessen) reports that a meal of blood seems necessary to the females of Culex nemorosus if the eggs they lay are to be fertile, but supports Theobald by stating he had bred Culex pipiens for two years continuously without blood feeding. Dr. Summa has treated Mediterranean Fever successfully in German South-West Africa by intravenous injection of 3 grains of collargol in an ounce of distilled water. A second injection was given a fortnight later, though not really

required. Dr. Richard Gonder reports from the Georg-Speyerhaus at Frankfort that the toxicity of salvarsan, given by intravenous injection, is increased if calcium chloride is injected at the same time, emboli forming in the lungs, and that its curative action is delayed if dead bacterial cultures are administered with it. Thus he emphasises the need for clean distilled water and saline solution for dissolving salvarsan, quoting McIntosh, Fildes, and Dearden.[1] There was in 1911, for three months, quarantine in the German Colony of Kiaochau, against plague coming from Shantung. Chinese immigrants underwent five days' observation. 1858 Chinese were so quarantined, and Dr. Besenbruch, staff-surgeon in the German Navy, took the trouble to note how many of them had had small-pox, and states that 38 per cent. had been attacked. They nearly all said they had had the disease before they were ten years old; so small-pox in unvaccinated China is a children's disease. He calculates the small-pox death-rate of the Shantung province at 4 per 1000, much the same as in Prussia in 1796. In the extracts from other journals appears a statement by F. Scordo[2] that goats infected with B. typhosus show no marked symptoms of illness, though they may succumb. They remain for some time carriers, excreting virulent bacilli in fæces, urine, and (in great quantity) in their milk. It will be recalled that goats infected with M. melitensis also show no obvious illness, and it should be remembered that a disease of men may be dependent on animal infection, although no similar disease of animals is at the time reported in the district.

Surgeon-General Christopher Pearson has been appointed Honorary Physician to His Majesty, in place of Inspector-General of Hospitals and Fleets Sir Herbert Mackay Ellis, K.C.B., K.H.P., deceased (dated Oct. 1st, 1912).

Correspondence.

"Audi alteram partem."

THE CHEMICAL EXAMINATION OF THE GASTRIC CONTENTS.

To the Editor of THE LANCET.

SIR,—In THE LANCET of Oct. 19th the methods of analysis of the gastric contents, which are described in a paper by Dr. A. S. Woodwark and one of us (R. L. M. W.), entitled "The Relation of the Gastric Secretion to Rheumatoid Arthritis," have been subjected to criticism at the hands of Dr. H. L. Tidy. It was the intention of one of us (G. G.) to deal fully elsewhere with the remarkable statements of Panton and Tidy,[3] but in view of these present remarks we feel that we cannot let them pass unchallenged.

Dr. Tidy points out that the figure given for the free hydrochloric acid in a normal case was only 0·02 grm. per cent. We were well aware that the values for the free hydrochloric acid obtained by the Volhard process were too low, and in the paper in question no particular stress was laid on the figures for the free hydrochloric acid, but rather on the sum of the free and the protein-combined acid—i.e., the active hydrochloric acid. However, it has been shown by one of us (G. G.)[4] that about two-thirds of the free hydrochloric acid can be driven off if the solution is not more viscid than a 5 per cent. solution of glucose. On the other hand, if a 7·5 per cent. solution be used, only one-third of the acid is volatilised. From this it is clear that in no case is the free hydrochloric acid all evaporated in this procedure. Since it is extremely rare to find a test meal which takes as long to dry as a 7·5 per cent. glucose solution, it is probable that two-thirds of the acid is removed in every case. The usual error is therefore only about one-half of that ascribed to the method by Dr. Tidy. As the free hydrochloric acid is too low, the protein hydrochloric acid will be raised to a corresponding extent, and the sum of the two will not suffer from any error such as occurs in the evaporation of the free hydrochloric acid referred to above.

The two methods mentioned by Panton and Tidy for estimating the free hydrochloric acid which depend upon the inversion of cane sugar and the catalysis of methyl acetate respectively, yield results which are fairly accurate and reliable; but, owing to various inconveniences and the time factor, they are impracticable for ordinary purposes. The other method advocated by Panton and Tidy[5] is very simple, and consists in the titration of the gastric contents with decinormal sodium hydrate in the presence of Töpfer's reagent—dimethylamidoazobenzene. This indicator has been called the indicator for free hydrochloric acid. These observers, however, admit that it also reacts with free organic acid—e.g., lactic acid, but not with the hydrochloric acid in combination with proteins. It has, however, been frequently shown that this indicator is considerably affected by the protein hydrochloric acid. Sörensen, after testing about a hundred indicators, came to the conclusion that there was no satisfactory indicator method for the estimation of free hydrochloric acid when the products of peptic digestion were simultaneously present. An examination of Panton and Tidy's figures shows that the free hydrochloric acid, as estimated by the dimethyl method, is usually 0·02–0·04 grm. higher than the figures obtained by the inversion of cane sugar method, and may be as much as 0·1 grm. higher. They were fully aware of the gross errors of the method but could not offer any satisfactory explanation. However, in the light of Sörensen's recent work, which we have confirmed with this particular indicator in comparison with the Güzburg test, there is no doubt in our own minds that the discrepancy is due to the interaction of the protein hydrochloric acid with the indicator. Thus we tested two kinds of peptone and also glycocoll to which just sufficient hydrochloric acid had been added to combine with all the protein or its degradation products, and it was shown by means of Günzburg's reagent that no free hydrochloric was present. The resulting mixture was then titrated with decinormal sodium hydrate using the dimethyl indicator.

—	HCl. added.	Dimethyl acidity.	Free HCl by Günzburg.
Witte's peptone 1 grm. per cent.	0·081 grm.	0·04 grm. HCl.	0
Coget's " " "	0·096 "	0·083 " "	0
Glycocoll 0·25 grm. "	0·13 "	0·116 " "	0

These experiments show very clearly that the dimethyl indicator reacts with hydrochloric acid which is either combined with protein or with protein degradation products. It has, moreover, been definitely shown that peptone is present in the test meals, and also that amino-acids are present in small quantities. Consequently, the presence of peptones and amino-acids in combination with the hydrochloric acid in the test meal will always affect the dimethyl indicator. This fact serves to explain the wide variations observed in an extended trial of this method, and justifies the conclusion that it is practically valueless. In any case, whatever may be the underlying cause, a method which is liable to such wide variations is hardly a suitable one on which to rely. Consequently, we prefer to use the Volhard method, and since we recognise that the free hydrochloric acid is not accurately estimated, we rely upon the determination of the active hydrochloric acid which, in our opinion, is absolutely trustworthy.

However, the determination of the active hydrochloric acid also comes in for Dr. Tidy's condemnation. He bases his criticism on the work done by himself in conjunction with Dr. Panton. They estimated the quantity of phosphates present in test meals in 17 cases, and found that it varied from 0·003 grm. to 0·11 grm. per cent.; the average was 0·04 grm. per cent., and the percentage of phosphates was more than 0·056 grm. per cent. on only three occasions. They tested a solution containing 0·5 grm. sodium chloride and 0·2 grm. of sodium dihydrogen phosphate dissolved in 100 c.c. of water. This solution was then heated in a platinum dish on a water bath. As a result of the interaction of the phosphate with the sodium chloride some of the latter was converted into hydrochloric acid, which was lost in evaporation. The hydrochloric acid lost in this

[1] THE LANCET, March 9th, p. 639, and 23rd, p. 828, 1912.
[2] Zentralblatt für Bakteriologie, Orig., 1911.
[3] Quarterly Journal of Medicine, vol. iv.
[4] Ibid.
[5] Loc. cit.

way amounted to 0·022 grm. In order to demonstrate the effect of phosphates still more clearly they then used 1 c.c. of pure phosphoric acid B.P., and found that the amount of sodium chloride converted into free hydrochloric acid was equivalent to 0·295 grm. of hydrochloric acid. In their other experiments they only used 0·25 c.c. of pure phosphoric acid B.P., and the error was equivalent to 0·208 grm. of hydrochloric acid. On the strength of these experiments Dr. Panton and Dr. Tidy have based the hypothesis that the presence of phosphates in the test meal may seriously invalidate the value of the active acid as determined by the Volhard method. Their experiments, however, can for various reasons hardly be said to be convincing. They have assumed that all the phosphorus which was found was present in the form of mineral phosphates, and they have completely neglected to take account of the phosphorus in organic combination which is present in the food given. Consequently all their figures for the amount of inorganic phosphates present are too high. It must also be pointed out that in all their experiments with the artificial mixtures of sodium chloride and phosphates quantities of phosphates were employed which were far greater than the largest amount ever found. Thus they used 0·2 grm. of sodium dihydrogen phosphate, which is double the greatest amount of phosphates which they ever estimated, and five times as great as the average amount. It is clearly of great importance when comparing artificial with natural mixtures to use identical amounts in each case, and particularly so when the Law of Mass Action is involved. But even so the error discovered was only 0·022 grm. per cent., and as the active acid is usually above 0·20 per cent. the percentage error is quite small. In their other experiments they used pure phosphoric acid, although there is no evidence that any phosphoric acid is ever present in test meals. The amounts used were 27 and 7 times as great as the largest amount of phosphates ever found, and the error was considerable—i.e., 0·295 and 0·208.

Experiments which we have made show that the addition of 0·2 grm. of sodium dihydrogen phosphate does, indeed, cause an error of 0·02 grm. per cent., but the addition of 0·1 grm. of sodium dihydrogen phosphate only causes an error of 0·005 grm. per cent. As the estimations of the chlorides are always carried out with 10 c.c. of filtered gastric contents an error of 0·005 grm. hydrochloric acid per cent. corresponds to a difference in the titration figure of 0·15 c.c., and this figure is within the limits of experimental error. Consequently the evidence on which Panton and Tidy have attacked the estimation of the active hydrochloric acid is extremely weak, and there is no reliable evidence to show that the estimation of the active hydrochloric acid by Volhard's method is inaccurate.

On the strength of the phosphate results Dr. Tidy also criticised the ratio between the active hydrochloric acid and the mineral chloride, but as the phosphate results have been shown to be valueless his criticism on this point also falls to the ground. The chief merit of the Volhard method lies in the fact that the mineral chlorides are estimated. This is especially important, as it was shown by Reissner, Clowes and Coleman, and one of us (G. G.), and repeatedly confirmed by both of us, that the mineral chlorides, which in the great majority of all cases of non-malignant disease of the stomach are about 0·09 per cent., are in malignant disease increased to a variable extent.

Consequently the value of the ratio of the active acid to the mineral chlorides in innocent cases is usually much above unity, and in carcinoma cases is less than unity. Care must undoubtedly be taken to avoid sources of error in the giving of the test meal, and to remember that the regurgitation of an alkaline fluid from the duodenum sometimes occurs, and may vitiate the results. But if these possible exceptions are borne in mind the method gives far more reliable and valuable results than the mere estimation of the total acidity, and of the free hydrochloric acid by means of the dimethyl indicator. We consider that the diagnostic indications which the method affords more than compensate for the time expended in carrying it out.

In conclusion, we repeat that the estimation of the active hydrochloric acid by the Volhard method is accurate,

We are, Sir, yours faithfully,

GEORGE GRAHAM,
R. L. MACKENZIE WALLIS.

St. Bartholomew's Hospital, E.C., Nov. 2nd 1912.

THE HISTOLOGY OF EXPERIMENTAL RHEUMATISM.

To the Editor of THE LANCET.

SIR,—Dr. M. H. Gordon in your issue of Nov. 16th says: "The work of Ainley Walker and Beattie has consisted in an attempt to wreck the tests by showing that streptococci vary to them in artificial environment." When one scientific worker charges another with an attempt to wreck his work, comment is perhaps superfluous. If Dr. Gordon had been content with this extraordinary statement, I would have deemed it sufficient to allow my fellow workers to judge between a simple statement of observations and mere invective unsupported by any evidence, but Dr. Gordon goes further, and, apparently without knowledge, even of the place at which the paper by Yates and myself was read (it was Liverpool, not Manchester), "gathers" that our work was not above suspicion on the ground of technique. Apparently he has not taken the trouble to find out what our technique was, but merely because our results are not in accord with his view, therefore our results are wrong and our technique must be faulty. This is a new method in scientific work, and I think, Sir, it really exceeds the bounds, not merely of courtesy, but of honest criticism.

My work on streptococci had led me for several years to doubt the results obtained by Gordon, but fully realising that the observations were made by one who was recognised as a competent bacteriologist, I did not publish anything on the subject until I had tested my strains exactly on the lines laid down by Gordon himself, and in the light of the article in the *Journal of Pathology and Bacteriology*, in which he attacked, I do not say criticised, the work of Ainley Walker. It is surely open to me to repeat the observations made by Gordon, and to publish the results without laying myself open to the charge of incompetence merely because my results do not agree with those obtained by him. He has the scientific journals open to him, and, if one may say so, his cause would be more advanced by giving facts than by attempting to discredit, by mere assertion, the work of those who disagree with him.

On the other parts of his letter I need not comment. With much of it I heartily agree, and I think it not at all unlikely that the streptococcus which I have associated with acute rheumatism is one of the normal inhabitants of the alimentary tract; whether it be S. fæcalis or S. salivarius, is to me a matter of absolute indifference. I do, however, protest against a classification of organisms which absolutely ignores, as I have shown in the *Journal of Pathology and Bacteriology*, pathogenetic effects.

I am, Sir, yours faithfully,

J. M. BEATTIE.

Bacteriological Department, University of Liverpool, Nov. 19th, 1912.

To the Editor of THE LANCET.

SIR,—In THE LANCET of Nov. 16th, p. 1394, Dr. M. H. Gordon offers "an emphatic denial" of the statement made by Dr. Carey Coombs, Dr. R. Miller, and Dr. E. H. Kettle in your issue of Nov. 2nd, p. 1209, to the effect that the cultural classification of streptococci based upon the tests introduced by Gordon have been proved unsound by "the work of Ainley Walker and of Beattie and Yates." Dr. Gordon's assertions would have carried greater weight had they been accompanied either now or at any time during the past two years by an attempt to meet the accumulation of evidence[1] which has been put forward to the contrary. This evidence is of so conclusive a character that it could hardly have been necessary to notice Dr. Gordon's letter had he not allowed himself to stigmatise my work (and that of Professor Beattie and Dr. Yates) as "an attempt to wreck" his tests. Such an expression is as inaccurate as it is improper, and is much to be regretted.

I do not find it easy fully to appreciate the attitude of mind which can regard an inquiry into the validity of a scientific theory as consisting in "an attempt to wreck" because it leads to an adverse conclusion, and which can at the same time continue to rely on unsupported asseveration and denial, however emphatic, as a sole answer to the facts

[1] Beattie and Yates: Journal of Pathology and Bacteriology, 1911–12, vol. xvi., p. 247; Ainley Walker: Ibid., 1911, vol. xv., p. 124; ibid., 1912, vol. xvii., p. 140; and Proceedings of the Royal Society, 1911, B, vol. lxxxiii., p. 541, and 1912, B, vol. lxxxv., p. 400.

of observation and experiment. The question at issue is in reality a very easy one to state. It is the old problem of the unity or diversity of the streptococci found in man. This is a question capable of experimental investigation. Dr. Gordon regards the streptococci as diverse, because different strains give different series of reactions in his test media. I differ from him as to whether this indisputable fact establishes his claim. The crux of the question is clearly whether the tests are constant or inconstant—i.e., whether the reactions of any given strain of streptococci in the test media are stable or unstable and liable to exhibit variations. I have repeatedly shown that the reactions are not stable at all, but highly variable.

Dr. Gordon's belief in the stability of the reactions was insecurely founded. It rested, as his original communications show, upon observations of the reactions of individual strains of streptococci "for periods up to a fortnight." Had he continued his examination of these organisms for a longer time, and been content to reach his conclusions somewhat less hastily, he might probably have modified this belief. After studying certain strains of streptococci continuously for more than four years I am in a position to state with confidence that Dr. Gordon is misled in regarding his tests as constant. They vary on continued cultivation of the streptococci, whether in artificial media or by passage through the bodies of animals. Accordingly these tests afford no evidence of the diversity of the streptococci pathogenetic for men.

So far from attempting to wreck the tests, my first step on arriving at conclusions in disagreement with his own was to inform Dr. Gordon by letter of the fact in June, 1910, and to invite him to be present at the reading of my first communication on the subject, in order that I might have the benefit of his opinion and criticism. This proved to be impossible. But with a prescience which continues to fill me with wonder Dr. Gordon was able to complete and place a reply, of which he admits the material portion to have been a criticism of technique, more than three months (Dec. 12th, 1910–March 30th, 1911) before the publication of the paper in which my technique was made known, and when nothing had appeared beyond a few lines of preliminary statement (and two tables of results) containing no information of any kind regarding methods. This in itself was a remarkable achievement.

But what Dr. Gordon euphemistically speaks of as a criticism "largely on the ground of technique" was, in fact, a definite implication that I was not alive to the ordinary requirements of bacteriological method, and reached my conclusions by the observation of cultures which were alternatively either impure or dead, or by using impure materials in the tests.[3] He now gathers, as he says, that Professor Beattie's work is "not above suspicion on the same grounds." Unless these remarks are merely frivolous or intended to be understood in a purely "Pickwickian sense," it must indeed be a distressing experience to Dr. Gordon to feel himself called upon thus to sit in judgment on the incapacity of Professor Beattie and myself.

But I venture to anticipate that his position will fail to command any general assent or confidence when it is seen that the only defence at present offered of the theory of the diversity of streptococci isolated from the human subject consists in the implied suggestion that those who differ from him in regard to this question do so because they are either incompetent to make pure cultures of streptococci, or so careless as not even to ascertain whether their cultures are alive or dead.

In conclusion, I may perhaps be permitted to point out once again that the variations which occur in the test reactions of streptococci in Gordon's media are largely dependent on the character of the environment in which the organisms concerned have previously been growing. It follows that these reactions may in certain cases afford some evidence as to the source and origin (and therefore in some degree as to the probable virulence for the time being) of particular strains, and this in my opinion constitutes the only present value of Gordon's tests.—I am, Sir, yours faithfully,

E. W. AINLEY WALKER.

University College, Oxford, Nov. 18th, 1912.

To the Editor of THE LANCET.

SIR,—I have noticed that in some cases of chronic rheumatism associated with bronchial catarrh and a habit of swallowing the sputum the rheumatism disappeared when that habit was checked. In one marked instance the sputum was teeming with streptococci. This would seem to lend support to Dr. M. H. Gordon's view as to the cause of rheumatism and to indicate that rheumatic patients should be questioned and cautioned about the disposal of their sputum.

I am, Sir, yours faithfully,

Keswick, Nov. 16th, 1912. W. D. ANDERSON.

[3] Journal of Pathology and Bacteriology, 1911, vol. xv., p. 323.

TUBERCULOSIS AND VENTILATION.

To the Editor of THE LANCET.

SIR,—On reading the provisions of the National Insurance Act as they refer more particularly to sanatoriums for the treatment of tuberculosis of lung, it has occurred to me that the maxim so often quoted, "Prevention is better than cure," should specially apply to this terrible disease, by which I mean that every effort that will diminish the incidence of tuberculosis should be insisted upon.

As regards the construction of dwelling-houses both in urban and rural districts, and especially the former, I believe I am correct in asserting that the efforts of sanitary authorities and the Local Government Board fall short of commonsense requirements, and that by failing to insist upon adequate ventilation—particularly in the crowded dwelling-houses of the poorer classes—those authorities are responsible for the incidence and spread of tubercle. This, of course, is a grave accusation to bring in this highly (?) civilised country of ours, but to the best of my belief and from the historical statistics afforded by the medical services of the navy and army, and from my own observation in various towns and rural districts of England, there is no doubt that there still exist such serious defects in the ventilation of dwelling-houses that the spread of tubercle is favoured thereby.

Looking back upon army statistics and the days when both at home and abroad men were crowded together in barracks insufficiently ventilated, that great pioneer of sanitary science, Dr. Parkes, clearly showed the vital necessity of more cubic air space and better ventilation, and by wisely following his teaching and advice the naval and military authorities were able to reduce markedly the incidence, invaliding, and mortality from phthisis. In this connexion I recall a visit I once made to "Stony Hill," Jamaica, nearly 20 years ago. Formerly used as a military station for European troops and then as a reformatory for negro boys, the rooms still bore traces of the old days when European soldiers slept in bunks slung close together. I was told that yellow fever, phthisis, and other infectious diseases made terrible ravages among the troops. The same tale of overcrowding and deficient ventilation applied to all parts of the world where British troops were stationed, but, happily, through Parkes's teaching, great improvements were brought about, particularly with reference to tubercle or phthisis; for by increasing the cubic air space and improving the ventilation of all barrack rooms the admissions to hospital for phthisis were soon reduced. I lay emphasis upon this recorded improvement of the health of the army because it bears directly upon the question of proper ventilation of dwelling houses in civil life.

Now the sanitary authorities are apparently under the impression that as long as a living or sleeping room is provided with a fireplace, that is quite sufficient for the extraction of vitiated air. This is a very serious error. Supposing, for instance, six people are occupying a small room of a cottage, the air is warmed and fouled in the process of respiration and rises to the top of the room, where it cools and then descends, gaining fresh exhalations of CO_2, and especially organic matter, until as time goes on the whole air of that room becomes foul and poisonous. What happens if one of the occupants is the subject of tubercle of lung and to those who are not already infected? If the foul air cannot escape by the fireplace and chimney it descends to the level of the occupants, who may inhale that poisonous air, and so we may have a spread of a notifiable disease.

In proof of the insufficiency of fireplaces as exits for vitiated air may be quoted many fatal cases of poisoning by coal-gas which have occurred from time to time. There were fire-places in the rooms, but the gas could not escape thereby. If the rooms had been provided with suitable exit ventilators at the ceiling level there would have been no fatalities to record, nor would gas explosions be so frequent.

I have quoted the well-worn phrase, "Prevention is better than cure," because I desire to show how obviously the purity of the air of living and sleeping rooms is associated with the well-recognised benefit of the open-air treatment of tubercle of the lung in sanatoriums and in private, for by insisting upon the purity of the air of living and sleeping rooms much phthisis would be prevented, and the treatment of tubercle begun at the proper starting-point—namely, in the home.

What should be done, therefore, and insisted upon by all urban and rural sanitary authorities, is to have, above everything, proper exits, so placed that the warm and vitiated air can escape from the room; and the proper place for these exits is as near as possible to the ceiling and opening into the chimney flue. I am aware that this is all laid down in the books, but it is not insisted upon by sanitary authorities, and in this lies the mischief. There are, I know, noiseless exit ventilators which will not only allow foul air to escape by the chimney, but which prevent down draught and smoke from entering the room, and these can be placed in position for a few shillings per room—a mere trifle when the benefits they ensure are considered.

I would, in conclusion, emphasise how important it is for the health of people occupying small houses with a low cubic air space that the air should be as pure as possible. The aim should be, of course, to render the air of sleeping and living rooms as pure as that outside, and this can only be accomplished by changing the air of those rooms often enough. The vitiated air *must* be extracted or find an easy exit from rooms which are too often overcrowded and the cubic air space consequently reduced to an unhealthy or dangerous minimum. I believe this can be done in the way indicated, but it will need to be enforced by the proper sanitary authorities. Architects, surveyors, and especially builders, will not trouble, as they seem to have an idea that proper exits for foul air are really superfluous or unnecessary in dwelling-houses. The responsibility must, therefore, remain with the sanitary authorities and the Local Government Board of this country. Surely, then, at this time when a National Insurance Act is at work with the object of providing sanatoriums for the treatment of tuberculosis by fresh air, one of the most important factors in diminishing the incidence of this scourge at its source is efficient ventilation in the homes of the insured and which will check the spread of infection. This should be a compulsory charge of the authorities mentioned, otherwise we are only dealing in half and belated measures, which are never attended with the best results.

I am, Sir, yours faithfully,
J. D. RECKITT, M.D. Brux., M.R.C.S. Eng., L.S.A.
Talgarth-road, West Kensington, Nov. 8th, 1912.

CEREBRAL ANGIOSPASM.

To the Editor of THE LANCET.

SIR,—Having had the good fortune to graduate from Edinburgh in the "seventies," Dr. William Russell cannot be expected to have a very accurate knowledge of a textbook which did not appear until 1892; but having written so much and so well on arterio-sclerosis he might have read the section on the subject in some one of the eight editions before saying in THE LANCET of Nov. 16th (p. 1351): "How little this communication of Dr. Peabody influenced medical teaching or thinking is shown by the absence of any reference to this condition in Sir William Osler's excellent and popular book ..... down to the 1909 edition, at least, so far as I have been able to discover." My knowledge of transient aphasia and monoplegia in arterio-sclerosis dates from the early "eighties," when a dear friend and colleague had scores of attacks. Dr. Peabody's second paper was read while I was deep in the preparation of the first edition; and here is the paragraph on the subject—concise and clear enough for a student's manual. "Transient hemiplegia, monoplegia, or aphasia may occur in advanced arterio-sclerosis. Recovery may be perfect. It is difficult to say upon what these attacks depend. Spasm of the arteries has been suggested, but the condition of the smaller arteries is not very favourable to this view. Peabody has recently called attention to these cases, which are more common than indicated in the literature" (p. 669, first edition, 1892). In the second edition I added a note upon vertigo and slow pulse. Subsequent editions were unchanged until the present (eighth, 1912).

I am, Sir, yours faithfully,
Oxford, Nov. 17th, 1912. WILLIAM OSLER.

THE "CONTINUOUS INHALATIONS" TREATMENT OF TUBERCULOSIS.

To the Editor of THE LANCET.

SIR,—After the delivery of the Bradshaw lecture by Dr. David B. Lees, and after what Mr. S. N. Bruce has written on the same subject on page 1318 of THE LANCET of Nov. 9th, I think that some might be interested to hear my experience. I believe that I may almost claim to have introduced into practice "continuous inhalations" for the treatment of pulmonary tuberculosis.

The origin of the idea started from Lister's work. In the summer of 1878 I spent some months in London at King's College Hospital in order to see the wonderful effects of the antiseptic treatment that Lister had introduced in his clinic at King's College. As when he was at Edinburgh, so too in London we were a lot of medical men from all parts of the world, anxious to know everything about the great reform, and to see how Spencer Wells performed his laparotomies at the Samaritan Hospital. When I came back to Padua, where I was assistant at the University, having occasion to see a good number of consumptive patients, it seemed to me that the worst symptoms (shivering, fever, great perspiration) were due to the same causes which were prevented by the antiseptic treatment. When tubercles have opened into the bronchi ulcerations are left in direct contact with the air, whose "germs" do infect, in the same manner that external wounds are infected. "The worst symptoms of consumption are then symptoms of septicæmia. Is it not possible to apply to the affected lungs the same antiseptic treatment that Lister has introduced for external wounds?" That was the question that I put then to myself and which I tried to solve.

In the winter of 1879 I made an inhaler. It was an oral one; the patient had to inspire the air which was forced to pass first through an antiseptic liquid, mainly composed of turpentine oil and carbolic acid. This inhaler gave me no good results, and I discarded it. It is the same that we still see sold everywhere, which is based on the same principle as the Junker inhaler for chloroform. A year later I tried a kind of cage made with fine wire net, at the bottom of which I put a sponge for receiving the antiseptic liquid. This cage was applied to mouth and nose and fastened at the back of the head in order to be worn *continuously* day and night.

The sweet voice of Lister, as sweet as he was in all his manners, used to insist on the fact that the antiseptic treatment must be *continuous*. The first results were a great improvement, and I tried more, and systematically since 1883, when I was a country doctor on the mountains of Bergamo, and described this kind of treatment by the name of "continuous inhalations."

In 1899 I wrote a book on the subject, "Cura e guarigione della tubercolosi polmonare" (Città di Castello, Tip. Lapi), and this book was translated into English and published in 1901 by John Wright and Co., Bristol; but as the title of "Treatment and Cure of Pulmonary Tuberculosis" seemed too strong the English title is "Pulmonary Tuberculosis, its Prevention and Cure." In 1904 appeared here the second edition, still with the title "Cura e guarigione," and now I am preparing the third edition. This treatment of continuous inhalations is quite familiar here in Italy, and I think that at this moment while I am writing perhaps not less than 5000 patients are using it.

Now about the "cure." I am quite confident in asserting, after an experience of 30 years, during which I have treated more than 2000 consumptives, and seen treated many and many more, that when the tuberculosis is simply bacillary the "cure" is certain. From this distinct stage of pure pulmonary tuberculosis, when the tubercles open into the bronchi we enter another very distinct stage, the stage of septicæmia. This begins with simple ulcerations infected by the common bacteria of the air, and goes on to the total destruction of the lungs with an enormous quantity of cavities of every description and dimension, full of a liquid

of every degree of septicity, which give all the symptoms of septicæmic consumption.

For this second stage, the stage of septicæmia, it is as certain as for the first stage that we obtain a perfect and constant cure, when the lesions of the lungs are not so formidable as to render the treatment impossible. Numerous cavities, cut bronchi, and large patches of destroyed tissues prevent the air, carrying the medicine, from reaching places where the treatment is necessary. And, of course, in such cases no hope is left. But even then we obtain a transient improvement. And as it is not possible by our means of diagnosis to say when such a condition exists, in septic consumption we cannot foresay when the cure is certain or not. It has happened many times to me that patients in exceedingly bad condition whom I judged without hope, were permanently cured; while others whom I considered rather hopeful cases, died. [An English gentleman, who was refused by an English sanatorium because his disease was too advanced, came to Perugia in order to be treated by me, and has now been permanently cured for five years. But this case is not amongst the worse cases; I would even say that it was not a bad case, so much so that when he came here I assured him of a perfect cure.

I am, Sir, yours faithfully,

CHARLES RUATA,
Professor at the University.

Università di Perugia, Nov. 13th, 1912.

THE FLANNELETTE QUESTION.

To the Editor of THE LANCET.

SIR,—Mr. R. C. Craven in his communication to you this week states that he has two points to answer in connexion with my letter in your issue of Nov. 2nd. Firstly, he says, "Dr. Parry complains that a quotation from his evidence before the Home Office Committee is given in a Nonflam advertisement. This is the first occasion when I have seen it suggested that one should not quote from a Blue-book." My chief cause of complaint was not this. It was that the quotation was a misleading one. It was a sentence from my evidence placed directly under words which made it appear that I was a believer in and supporter of Nonflam, whereas exactly the contrary is the fact. Secondly, he says my views on Nonflam are out of date. My view is as follows, that if Nonflam is washed in the way flannelette is usually washed it burns readily. The Nonflam Company in a letter to me, which is reproduced in full in the Blue-book referred to, say: "We may take a piece of our best proofed Nonflam and by short immersion in a very weak acid (such as acetic), or by steeping in running pure water, without even rubbing make it so that it burns as easily as ordinary flannelette, and yet the whole of the stannic oxide remains in it." They further contend that in the vast majority of cases the ordinary domestic wash leaves sufficient alkali in the material to keep it fireproof. The washer, they say, gives a final wring out in soapy water. I do not agree that this is the ordinary way of washing flannelette. I burnt in the presence of the Home Office Committee and of representatives of the Nonflam Company specimens of their fabric sent out to wash with no directions. They flamed readily and easily. For the Nonflam people to say that my views are out of date does not dispose of these oft-repeated experiments.

I hold strongly that the Nonflam Company has no right whatever to make my name appear as they have done, in their advertisement, as a supporter of their material. I am glad to see your fairness in putting both sides of the question. I am, Sir, yours faithfully,

Hove, Nov. 18th, 1912. L. A. PARRY.

A CORRECTION.

To the Editor of THE LANCET.

SIR,—In the summary given in THE LANCET of Nov. 16th of the paper read by Mr. W. Guy and myself before the Edinburgh Medico-Chirurgical Society upon Nitrous Oxide and Oxygen as an Anæsthetic for Dental and Surgical Purposes, there occurs a verbal slip which I should be glad to be allowed to correct. Your report states that "a portable *fan* was also shown." What we actually showed was a portable *form* of the apparatus, in which the source of supply of the gases consisted of two 50-gallon nitrous oxide cylinders and two cylinders of the same size containing oxygen. This was done specially to show the small amount of the gases required even for very long cases, when the mixture is given by the method we advocate.

I am, Sir, yours faithfully,

Edinburgh, Nov. 18th, 1912. J. STUART ROSS.

*** We regret the slip. We have also to regret that by an unfortunate error the name of Dr. William Russell was substituted for that of Dr. Dawson Turner in the same report, in describing a highly interesting case of lympho-sarcoma treated by radium.—ED. L.

UNILATERAL ASTHMA.

To the Editor of THE LANCET.

SIR,—In your issue of to-day Dr. Samuel West dogmatically states on p. 1353, "as epilepsy ..... is bilateral, so asthma affects both sides, unilateral asthma is unknown." Permit me to say that if unilateral asthma is unknown to Dr. West, it is known to me; and if he chooses he can find a number of such cases which I have recorded. Dr. Siegel, the author of the most recent treatise on spasmodic asthma, confirms my observations in his review of my book in the *Berliner Klinische Wochenschrift*.

I am, Sir, yours faithfully,

Wimpole-street, W., Nov. 16th, 1912. J. B. BERKART.

THE FIFTEENTH INTERNATIONAL CONGRESS OF HYGIENE AND DEMOGRAPHY AT WASHINGTON.

(FROM OUR SPECIAL SANITARY COMMISSIONER.)

(*Concluded from p. 1400.*)

Washington, Oct. 11th

The Cold Storage Problem.

Dr. HERBERT D. PEASE, of the Lederle Laboratories, New York, and secretary of the Sixth Section of the Congress, read in this section an interesting paper on storage and distribution of foods. Under the action of micro-organisms and ferments food decomposed, and it was important to know the natural history of these forces and their effects. Yet and for the most part we acted, he said, on an empirical basis. Cold storage was still in its infancy. We had been told that it was only good for cornering the markets and palming off bad food. Hygienists must show results and demonstrate the principles and laws, and the United States Department of Agriculture had set to work in this direction. This bureau, he said, is collecting scientific information on the whole question, which is a very important one from the economic point of view. If we can save in foodstuffs what used to be lost we shall enrich our countries considerably. Formerly, he said, 10 per cent. of the eggs laid in the States used to be lost, and now measures were taken to prevent the loss of some $15,000,000 worth of food. But we must separate the economic from the hygienic question. The object of the Congress is health not money, yet if it so happens money can be saved, we are more likely to secure our end, which is health. But we have not yet established the comparative nutritive value of foods eaten fresh or preserved in cold storage. To finally settle this important point he urged that scientific feeding tests should be made on men. Cold storage, he held, must follow a thought-out plan. In a hard freezing process the desiccation and drying concentrate the salts and make preservation very reliable. A simple chilling process may be applied very early before deterioration has begun, and failures in results follow when the process of decomposition has commenced before the meat was put in the chilling-room. But as each sort of food needs special consideration and treatment, it is quite impossible to lay down a legal definition in regard to the time or periods during which meat must or should be kept in cold storage. Better inspection rather than legal definition is needed. The condition of the meat when it goes into cold storage, and the methods of handling it when it comes out, constitute all-important phases of the problem. Undoubtedly the drying produced by the freezing process results in a loss of

flavour; chilling in that respect was preferable to freezing, but all must be done on sanitary lines. There must be registering thermographs and other automatic checks. All the general rules of sanitation can be applied to both the chilling and freezing processes.

Dr. M. G. PERROW, health officer of Lynchburg, Va., described a system for adapting mechanical refrigeration to public markets, which, he said, had revolutionised the routine in certain shops and markets and saved so much food that it paid financially. The municipality in this case had set the example and private tradesmen had followed. He urged the pasteurisation of cream used to make butter, complaining that much attention was devoted to milk, while cream and butter were generally neglected. In further reference to public caprice in these matters, he pointed out that while the cup at the public drinking fountain was suspect, the glasses used in the public sale of ice-cream were often insufficiently washed.

Mr. H. E. BARNARD, Food and Drug Commissioner of Indianapolis, insisted that many epidemics could be traced to food-supply, which should only be handled by persons medically examined at fixed periods. The bacillus carriers must be eliminated from the provision trade, while flies should be abolished, and dust prevented by the use of suitable screens and cases.

Dr. ERNST J. LEDERLE, Commissioner of Health, New York, explained that in the control of the milk-supply 44,000 farms or creameries in seven States had been inspected as well as the shops of 12,000 milk dealers in New York. He described the rules applied and how the different qualities of milk were labelled.

Sex Hygiene.

The introduction of Sex Hygiene as a subject for discussion undoubtedly constituted a new feature of the gathering. At previous congresses, as indeed at this congress, we have dealt with the prevalence of venereal diseases, and the police, economic and other problems or measures involved have been treated as a part of the science of the prevention of disease. But if such considerations are comprised in the term "sex hygiene," it also means a great deal more. Eugenics falls, for instance, within its scope, and, above all, under this heading comes the question of the education of the young in regard to the sex functions.

On the last day for the work of the sections a very large meeting was held of what was entitled the "Subsection on Sex Hygiene." A great number of ladies were present. Dr. PRINCE A. MORROW, of New York City, who is looked upon as the father of the movement, was in the chair, and opened a general discussion by pointing out that a few years ago eugenics and sex hygiene were terms that had no meaning in America, while now everyone is discussing these matters.

Dr. HOWARD A. KELLY, of Baltimore, as the result of investigations made at that city, denounced prostitution as the worst of plague sores. To his mind it was more mischievous than cancer and all other diseases, in the sorrow, suffering, and abbreviated lives which it caused. All forms of unnatural vice grew up with it, and it corrupted the public and the public officials concerned. At the Johns Hopkins Hospital of Baltimore they had treated some 200 little children, including even babies who had been violated in their cradles and thus contaminated with venereal disease. The causes of prostitution, as the Baltimore investigations showed, were not the inherent profligacy of women. The women were dragged, cajoled, tempted into prostitution, said Dr. Kelly, adding, "God bless the poor prostitute; God bless the poor victim of our civilisation." Even the pimp and the brothel-house keeper, he said, are only in part to blame. They are but the reflection of social circumstances. The housing conditions, the lack of space, of light, of air, of closet accommodation, the fact disclosed at Baltimore that as many as 11 persons have been found sleeping in one room, that there were but two closets for 30 families, that the very lowest living wage for girls is $6.80 per week and many cannot earn $5—these were the conditions which should be attacked and denounced. But the greatest fault lay, said Dr. Kelly, with the people at large, and with the attitude of indifference of the churches. The indifference of the public was more awful far than the evils themselves.

After such very energetic denunciation it was only natural to expect some practical suggestions for dealing with these evils described, but none were forthcoming, though the praises were sung of a judge who caused brothels to be closed, a reform which usually means that the prostitutes have to pay still higher rent elsewhere.

The Methods of "Sex Teaching."

At this stage, and on the motion of Dr. WILLIAM H. WELCH, the proceedings were interrupted to vote a complimentary address to Dr. Prince A. Morrow for his life's devotion to the cause and the questions now under consideration. When this had been unanimously adopted a special report on Sex Teaching was read by Dr. SNOW, of the Californian State Board. A round robin had been sent to educationists generally, and most of the replies to the question, Is sex teaching possible? were favourable. The upshot of this consultation was that only practical ends must be taken into consideration. The objects of such teaching must be health, right thinking, and the power of controlling conduct. Temptations must be anticipated, and therefore, said Dr. Snow, we must discuss with greater freedom "the sacred process of reproduction." The marvellous processes of reproducing life, when properly explained, must create veneration and prevent unwholesome curiosity. The less children think of sex the better, and the later maturity comes the better. People were only curious about what they do not know. We must anticipate the chance of a child receiving information from impure sources. The teaching of biology and hygiene in schools would be a great safeguard. The mind should be interested in important studies, and we must appeal to the higher altruistic instincts. Idleness was specially dangerous to youth. Great watchfulness over a child's habits before it went to school was necessary, and parents must be taught how to reply to children's questions as to the origin of human life. Children must have plenty of play and exercise. Then they might first be taught how plants multiply. After that would come instruction in the propagation of the low forms of life. The processes of reproduction in nature must be explained, and then human reproduction will be better respected. Pupils, in face of the wondrous beauty of nature's provision for the reproduction of mammals and then of man, will understand the utility of sexual morality. The evolution of parental love can be explained, and that as the greatest trouble arises in the reproduction of man therefore it is with mankind that parental love is most developed.

Sterilisation of the Unfit.

Professor MAURICE E. BIGELOW, of the Teachers' College, Columbia University, thought that biology as an applied science included all that has to be taught. The best general hygiene is applied biology and all that rises out of it. They could not prevent the social-evil, nor harmonise unhappy marriages, but they could save a few individuals. We could not establish sex morality as we now conceive it, but we could help some who struggle and are in doubt. Scientific instruction must benefit this and future generations.

Mr. BLEEKER VAN WAGENEN, of South Orange, New Jersey, and some other speakers now dealt with the sterilisation of men and women so tainted as to be unfit to procreate. But clear definitions on which all could agree were not forthcoming. According to some opinions, there were in the United States about 5,000,000 men and women who should be sterilised. At any rate, 10 per cent. of the population are a moral and economic burden and should not be allowed to have children. It appears that in Indiana some experiments in sterilisation have been made, but if the Supreme Court of the United States was to declare that such practices are anti-constitutional it might place the sterilisers in an awkward position.

From a good deal of wild talk which took place in this debate it was quite easy to see that a new sense of responsibility has arisen, and that there is now a large and devoted body of men and women in America who are quite determined not to ignore the "social evil."

MANCHESTER.

(FROM OUR OWN CORRESPONDENT.)

Accidents in Cotton Mills: "Accident Days."

FROM a practical address recently delivered to textile works managers by Mr. J. H. Crabtree, chief inspector of factories in the Oldham district, on the Prevention of Accidents in Cotton Mills the following lessons were learned. Serious

accidents in cotton mills were rife, and fatalities were of too common occurrence. Operatives were now employed under conditions of safety never before known, yet casualties happened daily. The most potent cause of accidents among young persons was lack of knowledge of dangerous parts, want of care in cleaning machinery, loose clothing and the wearing of scarves, and the wearing of long and unplaited hair. Indifferent light and delay in lighting up on dark days were also important factors. "Accident days" were fewer in July and August, partly owing to less employment during the holidays. They increased in the dark months and were fairly level from November to March. One of the most striking facts, however, related to the days of the week. Accidents were fewest on Mondays, the number rising steadily to nearly 30 per cent. more on Friday, while on Saturday they fell to 70 per cent. of Monday's number. There was a marked increase of accidents between 10 and 12 in the morning and between 3 and 5 o'clock in the afternoon, the heaviest toll being between 10 and 11 in the morning. Fatal accidents happened to workers in the following proportion: Men, 1 in 2500; women, 1 in 59,000; male young persons (under 18), 1 in 4500; female young persons, 1 in 62,000; children, 1 in 17,700. Of non-fatal accidents, one man was injured in 20; the same ratio with male young persons between 13 and 18; 1 woman was injured in 130; 1 female young person in 80; and 1 child in 140. The comparative immunity of women was noteworthy. The greater prevalence of accidents among girls was a matter for consideration in regard to the cleaning of machinery in motion.

Food Adulteration: Low Percentage in Manchester.

From the reports on the operation of the Sale of Food and Drugs Acts, Manchester and Salford contest the first place among English towns for purity of the milk-supply. Out of 1000 samples of milk tested, Manchester had 46 not up to standard and Salford 48, while Leeds had 312 and Devonport 397. The chief Lancashire cities—compared with Manchester as 4·6 and Salford 4·8—show Bolton's percentage to be 5·7, Oldham's 6, Burnley's 7, and Liverpool's, by far the worst record in Lancashire, 21·7. As to butter, the percentage of adulteration on the number of samples collected is 0·7 in Manchester and 1·5 in Salford, Liverpool 5·2, and in Grimsby 33·3.

The Irish Milk Commission in Manchester.

Before the Milk Commission appointed by the Lord Lieutenant of Ireland to ascertain the conditions of a pure milk-supply in England, Mr. J. W. Brittlebank, veterinary surgeon for Manchester, stated that only about 1/25th of the milk consumed in the city is produced in the city area; all cowsheds within the crowded portions of the city are abolished, and all dairy farms are on the outskirts. The control of the outside milk-supply was chiefly concerned with the prevention of tuberculosis. During the period 1902–1911 milk submitted to examination showed that Cheshire farmers had sent 9·88 per cent. tuberculous milk, Derbyshire farmers 6·7 per cent., and those of Staffordshire 7·57 per cent. Dr. James Niven, medical officer of health of Manchester, pointed out the striking diminution in the death-rate of infants under one year of age from tuberculous disease other than phthisis—from 11·04 per 1000 births in 1891 to 4·12 in 1910—since the corporation took additional powers for controlling the milk-supply.

Searchlights at Sea.

Dr. Henry Wild, F.R.S., at a meeting of the Manchester Literary and Philosophical Society on Nov. 12th, in a paper on Searchlights and the *Titanic* Disaster, contrasted the American view "that every ocean steamship carrying 100 or more passengers be required to carry two searchlights," with the 74-page report of the British official inquiry which dismissed the whole matter in five lines. The use of searchlights in "picking up" rock, land, or iceberg, or in navigating a canal, is merely mentioned as "possible," though they have been used for many years in the Suez Canal and in the Royal Navy. The Admiralty witness gave evidence that icefields could be made conspicuous at 2000 yards.

Manchester University Court Meeting.

At a meeting of the University Court held on Nov. 13th Mr. F. A. Southam, F.R.C.S., was elected a member of the Court. The treasurer's statement showed that the expenditure during the year was £76,661 and the income £78,719, while the total assets are £1,301,086. Considerable sums have been received from deceased friends, and £5500 from the additional Government grant. The organisation is contemplated of a course of instruction to meet the requirements of tuberculosis officers. The Public Health Laboratory is used by 80 authorities, but more than half of the examinations carried out were for the Manchester authorities.

Nov. 19th.

BRISTOL AND WESTERN COUNTIES.

(FROM OUR OWN CORRESPONDENTS.)

University of Bristol: Annual Meeting of the Court.

THE annual meeting of the Court of the University—almost the only meeting held by the Court—serves as an occasion for the publication of a report of the year's progress. At the meeting just held an account was given of work and of finance, showing that the amount of useful achievement is increasing while the income is not. During the year evening courses were offered, with satisfactory results, for the intermediate parts of the B.A. and B.Sc. curricula. A "testamur" has been established in journalism and another in social study, for which curricula have been organised. The number of students, including those taking evening courses, is well over 1000. The great event of the year was Lord Haldane's installation as Chancellor, which took place a few weeks back. Agricultural research has been established on a firm basis by the union of local funds with a special bequest and a grant from the Board of Agriculture, under the direction of a professor of agricultural biology; and a very valuable greenhouse laboratory has been presented to the botanical department by Mr. Hiatt C. Baker, a member of the council. The total income was £28,927; but this, small as it is, is unfortunately in advance of what is to be expected during the current year. This is particularly serious in view of the ever-increasing expenditure entailed in the inevitable and welcome expansion of the University's usefulness. The Treasury grant—£7000 per annum—is considerably less than was hoped for, and various speakers dwelt on its inadequacy, as well as on the slenderness of the financial aid given to British universities by the Government. There is urgent necessity for a large increase in the income of the University if it is to carry on satisfactorily the work to which it has been called.

Sanatorium Accommodation in Bristol.

Until the present time Bristol has suffered from a lamentable deficiency of accommodation for the sanatorium treatment of tuberculosis. The city council has maintained 21 beds at the Winsley Sanatorium. Now, however, this institution is being enlarged, and the introduction of the Insurance Act has necessitated a redistribution of the beds already provided. The result of this fresh allocation, so far as Bristol is concerned, is an immediate increase from 21 beds to 45, a total that will probably be raised to 50 at an early date. Even then, judging from the delay at present experienced by applicants for the maintained beds, the accommodation will still be far below what is necessary.

Colston Day in Bristol.

On Nov. 13th the anniversary of the birth of Edward Colston, born in 1636, was observed in Bristol in the customary manner. The dinners of the Dolphin, Anchor, and Grateful Societies were held in the evening, and the collections for the various charities amounted to £3318, being in excess of 1911. Mr. F. Richardson Cross, F.R.C.S., is the President this year of the Dolphin Society.

The Exeter Dispensary: an Interesting Election.

At a meeting of the management committee of the Exeter Dispensary, Miss Mabel Emily Gates, M.B., B.Sc. Lond., and Mr. Arthur Lawrence Candler, M.B., B.S. Lond., L.R.C.P. Lond., M.R.C.S. Eng., were elected members of the honorary medical staff of the institution. Miss Gates is the first lady to hold an appointment on the honorary medical staff of the Exeter Dispensary.

The Research Defence Society.

The annual meeting of the Devon branch of the Research Defence Society was held recently at Torquay. Admiral

Sir W. Acland, who presided, stated that the anti-vivisectionists were wrong in their conclusions, and therefore the Research Defence Society ought to be supported. A satisfactory report of the work of the society during the past year was received. Dr. F. M. Sandwith, the honorary treasurer to the society, gave an interesting address on Ancient and Modern Surgery, with lantern slide illustrations.

The Chard Board of Guardians and Vaccination.

Recently, as stated in THE LANCET, the Chard board of guardians decided to issue notices urging the importance of vaccination. This sensible procedure has brought a communication from the National Anti-Vaccination League threatening the guardians with surcharge for having these notices printed. The guardians at their last meeting decided "to let the letter lie on the table," several members of the board remarking that they would be glad to contribute towards any surcharge.

The late Mr. Sydney Morse, L.R.C.P. & S. Edin.

Mr. Sydney Morse, who died recently at his residence, Fowey, Cornwall, in his fifty-fifth year, was the son of a medical man at Crewkerne, and received his medical education at St. Bartholomew's Hospital, London, and in Edinburgh. He was highly esteemed in Fowey, where he had practised for the past 20 years, and was honorary surgeon to the local cottage hospital.

Nov. 18th.

SCOTLAND.

(FROM OUR OWN CORRESPONDENTS.)

Royal Victoria Hospital for Consumption, Edinburgh.

THE inauguration of the new buildings of the Royal Victoria Dispensary by Lord Dunedin will take place to-day (Saturday, Nov. 23rd) at 3 P.M. Sir Alexander Christison, Bart., will preside, and Sir Malcolm Morris will take part in the proceedings.

Antivivisection Shop.

A shop for the display of what purported to be the horrors of vivisection was recently opened in Edinburgh. It was raided by the students of the University, with the result that some of the raiders have come into collision with the authorities, but it must be conceded that the owners of the shop were seeking trouble.

Hardships during Disinfection.

Dr. M. H. Taylor, medical officer of health of Johnstone, has called the attention of the local authority to the advisability of providing a reception house or some shelters for those people whose houses are being disinfected. Several very trying cases had occurred during the recent bad weather. Families were turned out for hours in severe weather, no one wished to take them in for fear of infection, and the unfortunate people had to hang about in closes or any other shelter they could get.

St. Andrew's Ambulance Association.

Lord Dalkeith presided at the annual meeting of the St. Andrew's Ambulance Association which was recently held in Glasgow. The report showed that during the past year 9528 calls had been made on the wagons of the association, and the total number of patients conveyed since the formation of the association was 126,205. In Glasgow alone the number of calls last year was 6170, representing an average of practically 19 turns-out daily, leaving Sunday out of the calculation.

Care of Consumptives in Glasgow.

An important forward step has been taken by the health committee of the corporation of Glasgow in connexion with the administrative treatment of tuberculosis. In order to give coherence to the scheme it is now recommended that the officer of health for the city be formally appointed administrative tuberculosis officer, and that Dr. A. S. M. McGregor, his assistant—who is at present in charge of the work in connexion with tuberculosis—be appointed supervising tuberculosis officer at a salary of £500 per annum. It is also proposed that the medical officer be authorised to appoint, at salaries of £300 per annum each, three assistant tuberculosis officers to take charge of various dispensaries; and that five additional nurses be appointed to be attached to the various dispensaries at salaries of £80 each. The Local Government Board has approved of two wards at Ruchill fever hospital being used for one year for the treatment of persons suffering from pulmonary tuberculosis. Similar sanction has been granted Govan Tuberculosis Dispensary, and also the pavilion at Shieldhall.

The Medical Profession in the North of Scotland and the National Insurance Act.

At a special meeting of the Aberdeen Division of the British Medical Association held last week there was a large attendance from all parts of the division, which includes Aberdeenshire, Kincardineshire, and Aberdeen city. The following resolution was unanimously adopted:—

That after full consideration of the draft Regulations and the latest proposals of the Chancellor of the Exchequer as contained in his speeches and letters, the Division is of opinion that the medical profession must refuse service under the Act; and holds that negotiations can only be resumed when satisfactory assurances have been received in regard to the following points: (1) mileage; (2) constitution and powers of the Committee of Complaints; (3) abandonment of medical inspection.

The Division's Representatives have been instructed to support this resolution at the Representative Meeting of the Association now sitting. It is understood that the meeting was unanimous in feeling that in some respects, including the tuberculosis benefits, the conditions of service were worse than those previously offered, and that the terms would be below those of Friendly Societies at the present moment. At Inverness it was unanimously agreed that until satisfactory arrangements were made with the medical profession, more particularly with regard to mileage, the medical inspection of books and records, and the constitution of the panel of committees, the service should be refused. The meetings were agreed that the time had now come when the resolution of the Representative Meeting of the Association regarding the institution of insurance committees should be rescinded, and medical men allowed to accept nomination as members of these committees.

A Representative Meeting of the Banff, Elgin, and Nairn Division of the British Medical Association was held in Elgin on Nov. 12th, when the view taken was that the British Medical Association should appoint a committee to confer with the Chancellor, as they were of opinion that the terms proposed would form a basis for negotiation and discussion.

At a meeting of the Inverness Insurance Committee held on Nov. 14th a strong protest was made against the proposal of the Chancellor of the Exchequer to deduct 6*d.* from the Sanatorium Benefit Fund and give it to the doctors to cover the expenses incurred by them in connexion with tuberculosis. The following resolution was adopted:—

That they strongly protest against the proposal to deduct 6*d.* from the Sanatorium Benefit Fund, as it would cripple and hamper the work of the Committee in dealing with tuberculosis, and urge that the proposal be rescinded.

The chairman said that the proposal would seriously affect Inverness, where they were already in the fortunate position of being able to provide sanatorium treatment for all the insurance persons who applied. Having proceeded so far in the faith of receiving the full sum, it was heart-rending to be told that now they must stop and refuse treatment for want of funds.

Nov. 19th.

IRELAND.

(FROM OUR OWN CORRESPONDENTS.)

The Sanatorium Benefit and the Provision of Food and Clothing.

THE Irish Insurance Commissioners received last week a deputation from the Insurance Committee of the city of Dublin with reference to the desire of the Committee to provide food and clothing, where necessary, for patients in receipt of the sanatorium benefit. In reply to the deputation it was stated that the Commissioners were now advised that the word "treatment" could be held to include food and clothing. A curious legal difficulty has, however, cropped up. The Commissioners are advised that an Insurance Committee must make all arrangements for sanatorium benefit with the same party. That is to say, it cannot, for example,

make arrangements for the medical treatment with a medical man, for the nursing with a nurse, and for the drugs with a pharmacist. The entire treatment must be provided by the persons or local authorities undertaking such treatment. If this legal opinion is maintained its effect on the administration of sanatorium benefit will be far-reaching indeed.

The Dublin Profession and Mr. Lloyd George's Proposals.

A meeting of the Dublin Division of the Leinster branch of the British Medical Association was held on Nov. 14th in the Royal College of Physicians. The object of the gathering was to consider the position of the profession in relation to the latest statement of the Chancellor of the Exchequer with regard to the increased remuneration for medical benefit. After somewhat prolonged deliberation the following resolution was adopted :—

That this Division is of opinion that the concessions granted, though considerable, are not yet such as to justify the medical profession in accepting service under the Act as it now stands.

Poor-law Medical Officers' Salaries.

As a result of negotiations with the Belfast Medical Guild the Belfast board of guardians passed the following recommendation of the infirmary committee at a meeting of the board on Nov. 12th :—

That the scale of salary for the office of resident medical officer in the workhouse infirmary and hospital and Abbey auxiliary workhouse be—minimum £130, rising by annual increments of £10 to a maximum salary of £150 per annum; and that the question of rate of remuneration to be paid to locum tenens in dispensary districts be referred to the committee under the Medical Charities Acts for consideration and report.

The deputation from the Belfast Medical Guild, who interviewed the infirmary committee, are quite satisfied with this arrangement.

The National Insurance Act.

The much-discussed Act is so far a dead letter in many parts, especially in the rural districts of Ireland; and in towns, even where there is a large industrial population, almost everything except arrangements for paying into Approved Societies is in chaos. The Insurance Committees, when questioned, seem to have devised no plan for the administration of sanatorium or maternity benefit. They find it difficult to arrange with any hospitals or institutions, and in hardly any cases possess places of their own into which they can send consumptives. Further, no local medical committees have so far been recognised, and the Irish Insurance Commissioners have not yet issued regulations for sanatorium or maternity benefit, both of which apply to Ireland. The Irish Commissioners' refusal to appoint on the Local Insurance Committees names out of the list of medical men selected by the profession in various districts, and their selection of others, has irritated the medical profession. Some of those appointed in this way have resigned; others have refused to act; and, in a word, the Commissioners have lost the confidence of the profession, a fact greatly to be deplored. Then the various Friendly Societies, owing to their medical attendants having given notice of resignation for the end of the year, while medical benefit is not yet extended to Ireland, and realising that even in England and Scotland Mr. Lloyd George's latest terms are apparently not going to be accepted, are becoming greatly alarmed, and are sending deputations to medical men urging some temporary compromise. There is also a feeling among the profession in Ireland that the Council of the British Medical Association, in giving no distinct lead to the profession in the present crisis, has again shown weakness. On Nov. 16th Dr. Charles Dickson, one of the medical inspectors under the National Insurance Act, submitted a model scheme for dealing with tuberculosis in Antrim, but it was decided unanimously to postpone the consideration of the matter until the January meeting for the reason that to enter upon largely increased and undeterminable expenditure in connexion with sanatoriums, dispensaries, tuberculosis doctor, nurses, &c., in reliance simply upon the Treasury's assurance of some financial assistance, would be unwise. It was thought wiser to wait for full information as to the Treasury's intention in the matter. Mr. Barrie, M.P., pointed out the grave danger that this proposed scheme would result very much as local taxation accounts had resulted in the past. Local authorities had embarked on considerable expenditure, relying on the promises made by the Treasury and on certain grants, but the fund had become insolvent, and in County Derry alone they had suffered a loss of £7900.

Nov. 19th.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

The Commission on Depopulation.

FOR many years the population statistics of France have shown unsatisfactory conditions. The death-rate, it is true, in consequence of hygienic and prophylactic measures, has been somewhat diminished, but the birth-rate has also diminished to a degree so disquieting as to arouse the Government to action. The Minister of Finance has appointed an Extra-Parliamentary Commission to study the national, fiscal, and sociological aspects of depopulation and to suggest a remedy. This Commission consists of several hundred members, but does not contain one woman. It is to be feared that its results will not be commensurate with the number of its members, for to attain any serious results the hygiene of the dwelling, and especially the struggle against alcoholism, itself one of the most powerful factors in depopulation, must be taken into account. This would necessitate the re-establishment of the law relating to drinking shops, which was suppressed by the present authorities. But the Chamber of Deputies will never dare to decree the re-establishment of this law, because of the electoral influence possessed by the wine trade. There are many medical men on this Commission, including the *doyen* of the faculty and the directors of several of the services de santé, who are *ex officio* members.

The Air of Paris Underground Railway and Churches.

M. Sartory and M. Marc Langlois have made public the results of their bacteriological analyses of the air of the Métropolitain and of certain churches in Paris. On the Place de la Bastille (underground railway) one morning, after watering, they found only 410 bacteria to the cubic metre, whilst two hours later, the quays being dry and numerous persons in dusty garments being present 68,000 bacteria were counted. The air of the Metro' is much less contaminated with bacteria than the air of the streets and places, as is only natural, the dust disturbances being less. The dust is largely brought by persons who throng the quays at the dinner hour, leaving there all the dirt, often dangerous in kind, accumulated by them during their work. M. Sartory and M. Langlois would have the use by workmen of the lavatory and dressing-rooms made compulsory in all work-places, stores, and shops, thus preventing them from carrying about on their persons all the filth they collect. At the Place d'Italie (underground station) the authors' findings varied between 60 and 140,000 bacteria; at the Place de l'Etoile, from 900 to 2400 in the afternoon, from 90,000 to 270,000 at the busy hours. On the other hand, other stations have furnished very low counts: Kléber 1200, Boissière 1600, Anvers 1800, and Campo-Formio 800. In the morning the first-class railway carriages give from 1200 to 2000 bacteria; during the crowded hours they furnish from 15,000 to 30,000. In the second-class carriages from 6000 to 8000 are found in the morning, and from 70,000 to 120,000 in the evening. The air in the churches gave the following figures: Notre Dame, week-days 8000, Sundays 66,000; St. Germain-des-Prés, 9000 and 78,000; St. Germain l'Auxerrois, 950 and 32,000; Notre Dame des Victoires, 3400 and 10,500; St. Augustin, 3150 and 9800; and St. Honoré d'Eylau, 2700 and 10,600. These figures are much lower than those of the great shops, which show from 1 to 3 millions on business days.

The International Congress of Physical Education.

This Congress will be held in Paris from March 17th to 20th, 1913, under the patronage of M. Faillières and M. Loubet, and with the support of the Académie des Sports and other committees. Twenty foreign committees have been already formed. An exhibition and excursions will complete the programme of this Congress. Dr. Dausett, 41, Avenue Montaigne, is the secretary-general appointed to afford information and to enrol members.

An Old Fracture of both Malleoli.

On Nov. 6th, at the Société de Chirurgie, a military surgeon, M. Jacob, reported three cases of M. Vennin's. In two of the cases there were traumatisms of the extremities, one affecting the foot and the other the hand. The wounds were cleaned and disinfected with iodine, and later an amputation was performed with very good results. The

third case was that of a woman who fell from a bicycle and broke the malleoli. The fracture was badly reduced after the accident, and at the end of some weeks of continued suffering the patient consulted a medical man, who made out a Dupuytren's fracture badly set. An attempt at reduction left this patient partly powerless. Two years after the accident the astragalus was excised and under early movement a functionally excellent result was obtained. The removed astragalus was divided into two parts, a hinder one contiguous with the hinder half of the extremity of the tibia and covered with cartilage, and an anterior one corresponding to the anterior half of the tibial surface, and not covered with cartilage, but irregular and rugose. Numerous adhesions uniting this bone to the tibia made its exarticulation very laborious.

The Destruction of Adult Mosquitoes in Wooden Barracks.

At the Société de Pathologie Exotique M. Thiroux showed that in the struggle against the stegomyia the sanitarian has to destroy the mosquitoes in huts badly jointed, badly covered in, often without any flooring, where consequently the smoke or the mosquito-killing gas fails to give the hoped-for results. To overcome these defective conditions M. Thiroux conceived the practical idea of covering the huts entirely with large tilts (*bâches*), the edges of which were buried in the sand. He made comparative tests by placing bags containing mosquitoes in a box covered with a tilt and in one not so protected, in each of which the same amount of tobacco was burnt. He showed that the wind created in the uncovered case behind the wall on which it fell, an immune zone in which the smoke was repelled for a certain distance, and in this zone the mosquitoes found it possible to live. The use of the tilt in the destruction of mosquitoes in imperfectly closed places is very important, because it prevents the escape of the mosquitoes from their places, for the insects which escape from the building are killed between the wall and the tilt. M. Thiroux asked that in Senegal the sanitary service should have at their disposition in large towns half a score of tilts.

Nov. 18th.

VIENNA.

(FROM OUR OWN CORRESPONDENT.)

The Decrease of the Number of School Children Consequent on the Declining Birth-rate.

THE last general census, which took place in 1910, showed that there had been a marked decrease in the number of births within the last decade. This has been especially evident since the year 1903, and now this fact has been corroborated by reports coming from our public schools. A special study of the existing facts has recently been published in relation to school attendance, and the following figures are worth mentioning. In 1900 there were born in this city 52,346 living children, or 31·66 per 1000 inhabitants. In 1905 the number was 49,538, and in 1910 it was only 42,336—that is to say, 27·83 and 22·06 respectively per 1000 inhabitants—and in 1911 the births were more than 1000 fewer than during the previous year. Although the general death-rate went down from 20·16 per 1000 in 1900 to 15·81 per 1000 in 1910, this was not sufficient to make up for the decreasing birth-rate. The following figures relative to the number of school children supply a further illustration of the facts. In 1908 (when the children born in 1902 entered the schools for the first time) there were on a certain day 237,641 in all the public schools of Vienna, taking into consideration only those of ages from 6 to 14 years. This figure was an increase of 5445, as compared with the same day of the previous year. In 1909 the number was 241,180, or 3539 more than the year before. In 1910 it was 242,385, or 1206 more than in the preceding year; and in 1911 the figure stood at 240,870, or 1516 less than a year before. Perfectly identical conditions are found when only such children as were born in Vienna are considered—namely, a constant increase till the year 1910, followed by a decrease in 1911. Going further, and considering only children of ages from 6 to 10 years, we find that in 1908 there was an increase of pupils amounting to 2973, in 1909 it was 596, while in 1910 there was a decrease of 749, and in 1911 a further decrease of 4505. Thus it is clear that there was a decided drop of the birth-rate in 1904, for the children born in this year had to enter school in 1910. And for the school year 1912 the aggregate deficiency of school children is more than 3000; for the ages from 6 to 10 years it is over 7000. The figures are still more telling if only the first standard (age 6 years) is considered. Anyhow, the school board seems to anticipate that in a couple of years there will be fewer children in all the Vienna schools, so that there will be no necessity to erect new public schools. There is one advantage of the present and prospective conditions over those of the past—namely, that the number of pupils under one teacher, which not long ago was on an average 57, has now dropped to 49, and it will not be long before it falls to 40. This implies an improvement in hygienic and educational respects, which, however, is a trivial consideration in comparison with the serious problem of the falling birth-rate.

The Proposed New Dental Legislation and the Medical Profession.

The Government has laid before Parliament a Bill regulating the relations between our operating dentists, all of whom hold the degree of doctor of medicine, and the merely mechanical dentists. The idea seems to be that the long-standing tension between these two classes of dental practitioners shall be ended by enacting that no new licence shall be obtainable by a merely mechanical dentist, so that this occupation would in time die out as an independent business, and in future the mechanical dentist shall be a subordinate or a mechanical assistant of the dental graduate. As a compensation, those mechanical dentists who already possess a licence as such shall be allowed to undertake certain minor surgical operations in the mouths of their patients, including the filling of carious teeth and the extraction of roots, provided such procedures are absolutely necessary in the course of the reconstructive work they are doing. After a certain time they would be allowed to pass a kind of examination in order to obtain an extension of their licence. This latter point is naturally a desideratum of the mechanical dentists, but the dental graduates are strongly opposed to this concession as well as to the regulation which permits the mechanical dentists to do surgical work in patients' mouths. The Bill, therefore, satisfies nobody, but is on that account all the more likely to become law in a short time.

Medical Experiences in the Balkan War.

Interesting information is forthcoming as to the work which is being accomplished by the surgeons attached to the contingents of the Red Cross Society and the Knights of Malta in the Balkan war. From this country there have gone to Bulgaria, to Montenegro, and to Servia 50 surgeons, who are in charge of about 2000 beds. One of them, Dr. Fedlicka, states that he has had an opportunity of observing 670 cases of severe wounds in Servian soldiers, and expresses his surprise at the rapidity of healing and the aseptic condition of even the most dangerous injuries. Men shot through the body by bullets which penetrated the liver, the lung, the spleen, and the intestines recovered after a fortnight or so without much evidence of ultimate harm. The modern bullet is rendered aseptic by the enormous heat of the burning powder, and it hardly ever shatters long bones, so that there were very few amputations—only two in 670 cases—and only 20 instances in which plaster-of-Paris bandages were necessary. A large number of fractures of the bones at the base of the nose were seen in Turkish soldiers who were not accustomed to use rifles, and in consequence of the recoil received blows in the face from the stock when the weapons were fired. Dr. von Oettingen says that he has found that the use of masticol, a resinous, very sticky substance, for the first treatment of wounds gave him excellent results, as it hindered the entrance of micro-organisms and prevented their multiplication. The forces of the Slavonic nations carry in their outfit a first-aid package arranged after the Norwegian or Russian pattern, and about 95 per cent. of the wounded were found to have made use of this package. The severest wounds were those inflicted by the bayonet, and they also healed with more difficulty than bullet wounds. Shrapnel and other projectiles fired from heavy guns did great damage, mostly killing the victims. The sanitary precautions in the allied armies seem to be excellent, but not so on the Turkish side. But in Montenegro, where there is a sad lack of all medical requisites for the war, the Austrian Red Cross Society has undertaken an immense amount of work. As a rule the wounded recover sufficiently to be able to

return to the front after a fortnight, but those with wounds of the abdomen or skull are not in this category. Up to now it has been possible to prevent any serious outbreak of cholera, plague, or small-pox amongst the prisoners captured by the Balkan armies.

Nov. 18th.

SWITZERLAND.

(FROM OUR OWN CORRESPONDENT.)

The Swiss Society of Neurology: the Theories of Freud.

THE eighth meeting of the Swiss Society of Neurology took place at Lucerne on Nov. 9th and 10th, when the chairman, Professor du Bois (Berne) reported an increase of members. The next meeting will take place at Fribourg in the spring of next year. Professor Ladame (Geneva) read a most instructive and concise report on Neuroses and Sexuality, giving a complete *résumé* of Freud's theories. Freud, a pupil of Charcot, he said, very soon struck out on new lines both as regards the classification of neuroses and psychoneuroses, and as regards the increasingly important rôle which he attributed to the sexual instinct. He laid great stress on infantile sexual indications, referring neurosis largely to this origin, and summed up his views in one sentence: A normal sexual life excludes neurosis. Cramer, Löwenfeldt, and Oppenheim, Professor Ladame pointed out, have seriously opposed this theory of pansexuality. Quite a number of other authors have combated what they found to be exaggerated and inexact views. Kurt Mendel wrote a biting satire on Freud's typical infant, which he characterised as a perverse polymorph, whose suction of the thumb and childish sports were referred exclusively to the sexual sphere. Professor Ladame treated in his address the question of sexual abstinence, which he considered, and here he is corroborated by Bleuler and Briquet, does not offer any of the dangers Freud and his pupils have attributed to it. The dangers of sexual abstinence as reported on by Nyström and Marcuse are, he said, energetically refuted by Iwan Bloch and Albert Moll. Professor Ladame concluded his address—in which he considered that a capital mistake had been made by confounding the functions of nutrition and those of reproduction—by appealing to the higher *morale* necessitated by the foundation of the family and the continuance of a pure family life. The address was most favourably received.

Communications to the Meeting of the Society.

Dr. von Koehler (Mont Pélérin) contributed a "psychoanalysis" on a case of dementia præcox. Dr. Grandjean (Interlaken) gave details of an instructive case of scleroderma due to internal intoxication. Dr. Schuyder (Berne) spoke on the different forms of anorexy in adolescence. Dr. O. Naegeli-Naef, late of Zürich, who has just been appointed professor at Tübingen, read an exhaustive paper on the relationship of hæmatology and neurology. He is known as the author of a text-book on hæmatology. Professor von Monakow (Zürich) spoke on cerebral appendices, and Dr. Bing (Basel) on myelitis migrans.

Messrs. Reineger, Gebbert, and Schall showed some new electric appliances, among which the apparatus for diathermy came in for much notice, as did a compact and simple apparatus for applying dry heat to various parts of the body, Miramond de Luraquette's minimax apparatus.

Zürich, Nov. 13th.

CONSTANTINOPLE.

(FROM OUR OWN CORRESPONDENT.)

The War—Cholera, Disease, Privation.

THE ordinary population of the city of Constantinople is swelled at the present moment by a vast concourse whose presence is due to the war. This can be roughly divided into three distinct classes. First, there is the large number of refugees and wounded soldiers who are scattered all over the capital, occupying every available free building—all the barracks, mosques, schools, and so on. Secondly, there is the considerable company of charitable people of all circles and all nationalities, who are doing admirable relief and hospital work. Thirdly, there are the fluctuating elements of fighting men, who continually flock in from the provinces of Asia Minor, and who are speedily despatched to the front in order to relieve the defeated and to offer, in their turn, fit food for the cannon and bayonet. The misery, wretchedness, and destitution of the refugees are indescribable. I hear from an excellent authority that their number amounts now to over 25,000. Every day many more refugees are coming in from all the devastated places, where the shocks of war have effected their merciless or murderous work. Countless numbers of them camp in open spaces, in solitary courtyards, in cypress woods, in outskirts on the High Bosphorus, and in the numerous cemeteries. They have no suitable covering, no charcoal, no food, no milk for their babies. They left everything behind them, in many cases even their children, and, maddened by a terrible panic, fled before the victorious enemy. Their despair, due to starvation and physical and moral misery, is heartrending. The state of the women and children especially is most pitiful. Many of these contemplate those who try to help them with the dull, insane look of long starvation. Many entreat for a mere crumb of bread, or some covering to warm their bare limbs, with an expression that goes to the heart. The need is vast beyond description. Exceedingly laudable efforts at relieving it are being made everywhere. Embassies, public institutions, private individuals, rich and poor alike, are doing their utmost to assuage the misery and the sorrow. The Turkish Government officials are no laggards here; they contribute readily and liberally to the work of charity and benevolence. But all the combined efforts of officialdom and philanthropy are proving completely inadequate. The overwhelming misery clamours for more. Urgent appeals are being made in all European countries.

Lady Lowther, the wife of His British Majesty's Ambassador, has set a fine example in her arduous efforts. She is untiring in well-doing, and is making every possible attempt to gather contributions here as well as in England. The response has been splendid. The sums sent in were very liberal, but are proving, and must prove, inadequate, and further urgent appeals are being made. Already the rainy season is at hand, and one can hardly imagine, unless with the eye of experience of this city and its peoples, the scenes of heartrending destitution and wretchedness which there will be when winter sets in. To the apprehension and anxiety thus created, and appalling enough in themselves, must be added the fact of the appearing among the refugees and wounded soldiers of the terrible scourge of cholera, exactly as was anticipated some weeks ago in a communication to your columns from the British Delegate to the Constantinople Board of Health. What has been feared soon after the arrival of so many destitute people has now become a fearful reality. The epidemic is beginning to spread and has already carried off a number of victims. The authorities are doing every possible thing to arrest the disease. Isolation and measures of prevention are energetically being carried out, but the task is very heavy.

The various European Red Cross Associations now working in our midst lend a willing hand, although they are all exceedingly busy attending to their real objects—the vast numbers of wounded that arrive continually from the different battlefields of Thrace. I may here make special mention of the admirable services which are being rendered by Mr. Samuel Osborn, of the British Red Cross Association, who is also giving his services to the Red Crescent Hospital organised in Shishli by Dr. G. Clemow. Mr. Osborn has instituted in the British Embassy free classes for training ladies in the art of nursing and dressing wounds. His lessons have already brought excellent fruit. Owing to his initiative, Sir Richard Crawford, the director of the Constantinople Custom houses, has improvised two hospitals. The one which serves as the basis of the British Red Cross work is installed in the spacious, lofty rooms of the Stambul Museum; the other is established quite near the railway station, so that the wounded have not to be carried for a long distance. Sir Richard Crawford is providing food for the staff and the wounded. I have Mr. Osborn's authority for denying the news spread in European newspapers that the Turkish wounded soldiers received bad first aid attendance from the Turkish ambulance staff. He witnessed the treatment on the battlefield, and testifies that it was very good in many directions. Continual rain and mud made the ambulance service exceedingly difficult, but with all

that every possible thing was done in his opinion to meet the exigencies and requirements of the moment. It has been said that the Turk would never submit to anæsthesia for various religious scruples. Mr. Osborn, who had been told this before he left England, found that it was an idle story. The wounded Turkish soldiers took anæsthetics quite willingly, submitted obediently to operation, and their gratitude afterwards was profound. The bravery of the Turks on the field of battle is known, and it is certain that the smashing defeat which they have sustained was at any rate not due to the superior courage of the Bulgarians, but to the complete unpreparedness of the Ottoman army.

Nov. 11th.

UNITED STATES OF AMERICA.

(FROM OUR OWN CORRESPONDENTS.)

Poliomyelitis among Eskimos.

ACCORDING to reports received by Surgeon-General Blue, of the United States Public Health and Marine Hospital Service, from the officers in charge of the health of the Eskimos of Alaska, poliomyelitis has appeared among these people for the first time on record. At St. Michael's five cases of the disease have been reported with one death, and at Unkaleet, 45 miles distant from the former place, ten cases with two deaths. At Sitka also a few cases have been reported.

Child Hygiene in New York City.

Dr. Ira S. Wile has been appointed a member of the New York City Board of Education. The Board has provided for the appointment of two additional medical men for the examination of mentally deficient children, of an assistant inspector of ungraded classes, and of a social worker to visit the parents of children of this class.

Unnecessary Street Noises.

In the interesting correspondence of THE LANCET'S Special Sanitary Commissioner at Washington on the recent International Congress of Hygiene and Demography, special attention is directed to the paper read by Dr. George M. Kober on street noises. Nowhere in the world, perhaps, are street noises so persistent and insistent as in the large cities of the United States and Canada. In New York street noises continue day and night, and to one who lives near an avenue through which elevated trains and tramcars run, the noise is more evident and unpleasant by night than by day. The *Canadian Journal of Medicine and Surgery* for November comments editorially on the street noises of Toronto, and records the opinion of Sir George Reid, High Commissioner for Australia, who recently visited that city, that the Toronto tramcars were more noisy than any he had ever heard. He had not visited the United States at that time. In another paper read at the above-mentioned Congress, Dr. C. J. Blake, professor of otology at Harvard Medical School, showed that the deleterious effect of unnecessary noise was evident, not only in the changes occurring in the organ of hearing, but also in the consequent fatigue effect and functional disturbance of the nervous system. A great deal of the noise incidental to modern life is avoidable. A society has been formed in the United States for the suppression of unnecessary street noises, and near the hospitals of New York zones of silence have been established. It is well that attention should have been drawn to the subject at the International Congress of Hygiene and Demography.

Death of Dr. George Montgomery Tuttle.

Dr. G. M. Tuttle, a well-known gynæcologist of New York, died at his house, 38, West Fifty-second Street, on Oct. 29th, from angina pectoris. Dr. Tuttle was born in Rochester, New York, on Oct. 2nd, 1856. He was educated at Dresden, Germany, and at Phillips's Academy, Andover, U.S.A. He graduated in arts at Yale University in 1877 and in medicine at Columbia University in 1880. He was interne in the New York Hospital from 1880 to 1881; physician-in-chief of the New York State Emigrant Hospital from 1881 to 1883; attending physician at Bellevue Hospital from 1883 to 1889; and professor of gynæcology at the College of Physicians and Surgeons, New York, from 1886 to 1893. From 1884 up to the time of his death Dr. Tuttle was attending gynæcologist at the Roosevelt Hospital, New York, and for a part of that time served as president of the medical board of that hospital. He was also consulting physician to the New York Infirmary for Women and Children. He was a member of the New York Academy of Medicine. Dr. Tuttle was an important contributor to the "American Text-book of Gynæcology."

Nov. 12th.

Obituary.

ROBERT FLETCHER, M.D. COLUMB., M.R.C.S. ENG., L.S.A.,

OF THE SURGEON-GENERAL'S LIBRARY, WASHINGTON, U.S.A.

ONE outcome of the Civil War in the United States was the collection of a medical library, which has grown to be the most important in the world. Much of its value depends upon the colossal work begun by Dr. John S. Billings in 1873, as the volumes of the Index Catalogue of the Surgeon-General's Library are the most important contribution ever made to medical bibliography. Connected from the outset with this undertaking was an English physician, Dr. Robert Fletcher, and a student of the Bristol School and of the London Hospital, whose death, at the age of 90, has just been announced by cable. Shortly after taking the diploma of the Royal College of Surgeons of England in 1844, Dr. Fletcher went to the United States, and for some years practised in Cincinnati. At the outbreak of the Civil War he was appointed surgeon to the 1st Regiment of Ohio Infantry. For two years he served in the field, and then took charge of a large hospital at Nashville, Tennessee. He retired from the army with the rank of lieutenant-colonel, and afterwards the rank of colonel was conferred upon him for his service during the war.

In 1876 he became associated with Dr. Billings in the Surgeon-General's Library, and together they undertook the herculean task of issuing the famous catalogue. In the first volume, acknowledging the valuable assistance received, Dr. Billings remarked that without Dr. Fletcher it would have been impossible to carry out the work; only those who use the volumes realise its magnitude. Since 1880 32 folio volumes have been issued, usually of about 1000 pages each, embracing, as a rule, 10,000 author titles, and representing from 4000 to 5000 bound volumes, and from 7000 to 10,000 pamphlets. Now in the second series, finishing the letter "S," it forms the catalogue of a library which last year contained 176,690 bound volumes and 315,414 pamphlets. To issue the volumes regularly, and with the greatest degree of bibliographical accuracy, has been the ambition of the authors. After Dr. Billings's retirement the work of the Index Catalogue was carried on by Dr. Fletcher, with the assistance of late years of Dr. Fielding Garrison. In 1878 Dr. Fletcher became associated with Dr. Billings in the *Index Medicus*, a monthly journal giving the current medical literature of all languages. When, after a lapse of several years, the *Index Medicus* was revived by the Carnegie Institution of Washington, Dr. Fletcher was chosen editor in chief. For the extraordinary accuracy of both the Index Catalogue and the *Index Medicus* Dr. Robert Fletcher was very largely responsible. To the last volume every page of the Index Catalogue was read by him in proof.

For many years Dr. Fletcher lectured on Medical Jurisprudence at one of the Washington schools, and subsequently gave an annual course of lectures on the subject at the Johns Hopkins Hospital School, Baltimore. He wrote many interesting papers on anthropology, on folk-lore, and on the older English dramatists and poets, in the literature of which he was thoroughly versed. Dr. Fletcher enjoyed an old age of great mental vigour, and was at work almost to the end. A few years ago he had a serious illness with a slow recovery, but he got into harness again and retained an unfailing interest in the library. The great Washington Library has exercised a far-reaching influence on the profession in the United States, and, under the fostering care of successive surgeons-general, has become a centre of research for students from all parts of the country. It has the two essential requisites of a public library—what you ask for you get; and you are treated with courtesy. For its organisation and efficiency two men have

been chiefly responsible, Dr. John S. Billings, the present head of the New York Public Library, and Dr. Robert Fletcher.

ARTHUR HENRY BENSON, M.A., M.B. DUB., F.R.C.S. IREL.,

SURGEON TO THE ROYAL VICTORIA EYE AND EAR HOSPITAL, DUBLIN, ETC.

THE death occurred on Nov. 6th, at the age of 60, of Mr. Arthur H. Benson, of Dublin. He had been in bad health and unable to work for some eighteen months past, and for a week or more before its occurrence his death was expected daily. A son of the late Professor Charles Benson, late President of the Royal College of Surgeons in Ireland, and a younger brother of Sir Hawtrey Benson, late President of the Royal College of Physicians of Ireland, Arthur Benson was educated in Trinity College, receiving his M.B. degree in 1876. He proceeded to the Fellowship of the Royal College of Surgeons in 1881. Taking up the study of diseases of the eye and ear, he was appointed surgeon to St. Mark's Hospital, and aural and ophthalmic surgeon to the Royal City of Dublin Hospital. On the amalgamation of St. Mark's Hospital with the National Eye and Ear Infirmary, he became surgeon to the Royal Victoria Eye and Ear Hospital, of which institution he remained a surgeon to his death. He contributed numerous papers to the medical journals dealing with ophthalmology. He was President of the Section of Pathology of the Royal Academy of Medicine in Ireland from 1909 to 1911.

Mr. Benson was a man of singular charm and amiability, who won respect both by his personal character and by his professional ability. He was fond of outdoor sports, particularly of sailing and golf. His widow and brother may be assured of the sympathy of his professional brethren.

DEATHS OF EMINENT FOREIGN MEDICAL MEN.—The deaths of the following eminent foreign medical men are announced: We regret to learn from *La Semana Médica*, of Buenos Aires, of the death of a distinguished Argentine physician and philosopher, Dr. Porfirio Parra, President of the Physiological Section of the National Academy of Medicine. He encountered a good deal of opposition in his literary and philosophical work, as his views were not those held in favour by the generality of Argentine writers. His chief published work was entitled "A New System of Inductive and Deductive Logic," in which he followed generally the principles of Mill and Bain.—Dr. Roberto Lloveras, a distinguished Buenos Aires physician, aged 61. His services to the Argentine Republic during the epidemic of cholera in 1887, when he was one of the Commission appointed by the Government to take measures for combating the disease, were greatly valued. In early life he visited the London and Paris medical schools and paid special attention to laryngology and otology.—Dr. V. Camparan, formerly Senator for the Haute Garonne.—Dr. Henri Dor, of Lyons, formerly professor of ophthalmology in the University of Berne.—Dr. H. Hildebrandt, *privat-docent* of pharmacology in the University of Halle, in consequence of an Alpine accident.—Dr. Wilhelm Ebstein, medical Privy Councillor and emeritus professor of medicine in the University of Göttingen, at the age of 75. He was a student under Frerichs, Romberg, Traube, and Virchow. His first appointment was in Breslau, but in 1874 he was invited to become professor of medicine in Göttingen. His papers and articles in medical encyclopædias were numerous, and dealt chiefly with food, the organs of digestion, and gout. He also wrote valuable articles in various journals on medical and semi-medical subjects, including many of a historical nature.—Dr. Dümms, president of the Leipsic Rescue and Samaritan Societies, at the age of 62. He was surgeon-general in the Saxon army.—Dr. M. Jacoby, medical councillor, of Friedrichshagen.—Dr. F. Günnemann, of Lemgerich, medical councillor.—Dr. N. Nahm, of Frankfort, medical councillor.—Dr. O. Löwe, of Dresden, who was also a doctor of philosophy.—Dr. Haustaedt, of Elgersburg, Gotha, medical councillor.—Dr. O. J. Lauper, chief surgeon of the Interlaken District Hospital, after an operation which was performed on him in Berlin. He was *privat-docent* of surgery in the University of Berne.—Dr. Heinrich Kadyi, professor of anatomy in the University of Lemberg, in consequence of extremely virulent septic poisoning, contracted while embalming the body of a member of the local noblesse.—Dr. Descroizilles, formerly physician to the Paris hospitals.—Dr. E. de Cyon, of Paris, formerly professor in the Faculty of Science of the University of St. Petersburg.—Dr. Boucaud, of Bordeaux, formerly physician to the Lyons hospitals.

THE NATIONAL INSURANCE ACT:

THE SPECIAL REPRESENTATIVE MEETING OF THE BRITISH MEDICAL ASSOCIATION.

THE Representative Body of the British Medical Association began its sixth meeting since the introduction of the Government's scheme for National Health Insurance on Tuesday, Nov. 19th, at 10 A.M., in the Connaught Rooms, London. For permission to publish the following account of the proceedings up to the time of our going to press we are again indebted to the Executive of the Association. With the consent of the Representative Body a member of the staff of THE LANCET was present during the meeting, which was private throughout, though an official account of the proceedings has been given to the press. The purpose of the meeting was to receive and consider the report of the Council (published in our issues of Nov. 2nd and Nov. 9th) and to pass resolutions connected with that report.

The chair was taken by Mr. T. JENNER VERRALL, the chairman of Representative Meetings, whose fairness and ability in this position had already gained for him the confidence of all members. After the disposal of formal business the chairman drew attention to the fact that by the Articles of the Association it was necessary for a decision of the Representative Body to be passed by a two-thirds majority in order to become valid as the policy of the Association. Whilst recognising the existence of a division of opinion upon certain vital points, he appealed to the Representatives to do their utmost to preserve the integrity of the Association.

A debate which lasted some time was then opened by Dr. T. A. HELME upon the order in which the business of the meeting should be taken, and it was agreed that the Representative Body should not discuss the Council's report until it had decided by vote whether service should be accepted or not under the conditions laid down by the Regulations and explained by the Chancellor of the Exchequer. A motion by the Bradford Division was then discussed at length, and after both sides had been heard this was carried in the following amended form:—

That in the opinion of this Representative Meeting the Regulations issued by the Insurance Commissioners and the latest proposals of the Chancellor of the Exchequer are unworkable and derogatory to the profession. As a consequence, the medical profession declines to take service under the Act and Regulations as at present constituted.

The discussion at this stage mainly centred around the form of words in which the general feeling of the meeting should be conveyed. When this had been settled another very long debate began upon the question of reopening negotiations with the Commissioners and the Government. As had been foreshadowed by the published decisions of many Divisions of the Association, the Representative Body showed a complete cleavage of opinion upon this matter, and each side was vigorously represented.

As an amendment to a motion paving the way to a conference with the Chancellor of the Exchequer, with a view to the settlement of the points on which the demands of the profession had not yet been met, it was proposed by Mr. R. HARDING, and seconded by Dr. HELME:—

That this Representative Meeting instructs the medical secretary to forward to the Chancellor of the Exchequer a copy of the resolution passed this morning by an overwhelming majority, and to inform him that any further proposal of the Government for meeting the grave objections of the profession shall receive the most careful consideration of the Association.

In the discussion arising out of this motion and throughout the day many speakers emphasised the fact that the conditions of service proposed by the Regulations, and not the terms of remuneration, lay at the root of the objection of the medical profession to take service under the Act. When the above amendment, which in the chairman's view

was the crucial decision of the whole meeting, was about to be put to the vote, a card vote was demanded. The amendment was opposed by Dr. W. DUNCAN and Dr. E. J. MACLEAN, who urged the meeting not to take up a position which would probably bar the way to further negotiations.

The result of the card vote was announced on Wednesday morning. Constituencies representing 9292 votes were in favour of the amendment, and those representing 9269 were against. In view of the serious position revealed by this vote the meeting was addressed by the chairman, Mr. VERRALL, and the deputy chairman, Mr. E. B. TURNER, who appealed for some compromise which would secure united action and avoid a deadlock. To this end it was agreed that an effort should be made to frame a comprehensive amendment.

Mr. D. F. TODD proposed, and Dr. H. HOYLE WHAITE seconded, an amendment of which the first part ran as follows:—

That this Representative Meeting instructs the Council to forward to the Chancellor of the Exchequer a copy of the resolution passed yesterday by an overwhelming majority, and to draw his attention to the points on which it would be possible for a conference between himself and representatives of the Association to take place; and that this meeting do now proceed to draw up what it believes to be the reasonable demands of the profession to be laid before the Chancellor by a committee to be elected for the purpose.

This was carried unanimously amidst applause, and the meeting at once proceeded to arrange the constitution and method of election of the committee.

It was decided that the deputation to confer if necessary with the Chancellor of the Exchequer in accordance with the above resolution should consist of Mr. T. J. Verrall (chairman of Representative meetings), Dr. J. A. Macdonald (chairman of Council), Mr. E. B. Turner (deputy chairman of Representative meetings), Dr. R. M. Beaton (London), and Dr. T. A. Helme (Manchester); and that a new State Sickness Insurance Committee should be elected in the same manner as the last Committee.

The second part of the resolution was passed in the following amended form:—

The State Sickness Insurance Committee which will be elected shall be entrusted with the duty of arranging the conference, and shall receive the report of the Special Committee appointed to interview the Chancellor of the Exchequer. On receiving the report of the Committee on the interview with the Chancellor the State Sickness Insurance Committee will report to the Council the result of the conference. Should there be any modification of the conditions now offered, the Council will thereupon report the whole matter to the Divisions in the United Kingdom, who will be requested to call meetings of all members of the profession resident in the Divisional areas to vote as to whether the final terms suggested should be accepted or not. The votes of all present and voting to be recorded in two classes—those of members of the Association and non-members respectively—and the combined record of all such votes of members of the Association for or against acceptance be decisive, the vote given by non-members to be recorded for the general information of the Association.

Following the mid-day adjournment the Representative Meeting proceeded to consider in detail the instructions under which the Special Committee of five and the State Sickness Insurance Committee should act. This included the formulation and arrangement of the "reasonable demands" mentioned in the first part of Mr. Todd's resolution.

The meeting spent many hours in discussing the points which should be brought before the Chancellor of the Exchequer at the proposed conference. When this important business had been disposed of a motion standing in the name of Birmingham Central was proposed by Dr. HOYLE WHAITE as follows:

That until some general scheme of contract or other form of medical service is approved by the Association, the members of the British Medical Association decline, after Jan. 15th, 1913, to undertake or conduct any form of contract practice for non-insured persons, except upon such terms as shall be approved by the Council of the Association

This was opposed by Mr. TODD on behalf of colliery surgeons; and Dr. MACDONALD suggested that the matter should be held over for the present. The motion was eventually carried with the date changed to March 25th, 1913.

The remainder of the report of Council was then approved, and the items of the agenda not dealt with were referred to the Council. The meeting did not close until after midnight.

Professor Grafton Elliot Smith, F.R.S., has been awarded a medal by the Royal Society for his researches on the comparative anatomy of the brain.

THE NATIONAL INSURANCE ACT.

THE SOCIETY OF APOTHECARIES, LONDON, AND THE ACT.

THE following resolutions have been passed by the Parliamentary Committee of the Society of Apothecaries:—

1. That in the opinion of this Committee the conditions set up by the Provisional Regulations of the Insurance Commissioners, dated Oct. 1st, 1912, are of such a nature as to interfere injuriously with the rights and proper independence of the medical profession and with efficiency in the treatment of insured persons.
2. That medical practitioners, in matters concerning their professional conduct, ought not to be tried before a tribunal that is not professional, the decisions of which may have the most serious effect on their reputation and practice.
3. Seeing that the carrying out of the Provisional Regulations is left largely in the hands of the Local Insurance Committees, it would be unwise to agree to accept them (even if otherwise satisfactory) so long as the insured persons are represented upon these Committees by an overwhelming majority.
4. That attention should be called to the advisability of establishing tuberculosis centres in connexion with those hospitals to which medical schools are attached.
5. That further efforts should be made to maintain the right of the medical practitioner to dispense his own medicines to insured persons under the Act.

THE INSURANCE ACT AND HOSPITAL RESIDENTS.

Application having been made to the Insurance Commissioners for the determination of the question whether resident medical officers employed by hospital authorities to render professional services in a hospital are required to be insured under Part I. of the National Insurance Act, a public hearing was held on Oct. 22nd, 1912, and the Commissioners have given the following decision: "That resident medical officers at hospitals employed under the conditions referred to at the hearing on Oct. 22nd, 1912, are not employed under a contract of service within the meaning of the National Insurance Act, and are accordingly not required to be insured thereunder, even if their rate of remuneration does not exceed in value £160 a year."

THE IMPERIAL MEDICAL REFORM UNION.

We have received from Mr. George Brown, the general secretary of this organisation, a statement for publication explaining why the Executive Committee of the Union have resolved to recommend the acceptance, given certain concessions, of the terms offered by the Government for the medical attendance of insured persons:—

"One of the chief objects," he writes, "of the Union is 'to obtain more satisfactory terms for club practice, preferably on the basis of payment for work done.' From the time that the Chancellor of the Exchequer introduced the Insurance Bill to the House of Commons the Council of the Union have unceasingly endeavoured to obtain recognition of the principle of payment for work done. Whilst the Bill was passing through its various stages in the House of Commons repeated representations were made to the Chancellor of the Exchequer, the leaders on both sides of the House, English, Scotch, and Irish, were interviewed, and every Member of Parliament was appealed to by letter to favourably consider the method proposed by the Union, viz., payment for services rendered and medicines supplied. ..... Since the Bill became an Act of Parliament, recognising that the clauses relating to 'medical benefits' were very elastic, the Council of the Union have, through correspondence and interviews, strongly urged upon the Commissioners the advisability of recognising the principle of payment for work done. ..... It was with great satisfaction that the members of our Council recognised when the Provisional Regulations were published that the Joint Committee, acting with the Insurance Commissioners for England, Scotland, and Wales, had recommended provision to be made for 'payment by attendance.' As set forth under Section E, Part II., p. 28 of the Provisional Regulations (Wyman and Sons, Limited, Fetter-lane, E.C., price 2d.), the Local Health Committees are empowered to arrange with local doctors willing to work under a scale of fees for the following among other services—viz., visits to patient's residence, attendance at practitioner's surgery, special day visits, night visits, and on Sundays, consultations with other doctors, operations, reduction of fractures and dislocations, administration of anæsthetics, &c. In country districts doctors will be paid for supplying medicines, but in towns medicines will be supplied by chemists. The sum set apart for payment of medical fees will be 8s. 6d. per head per annum where medicines are supplied by the doctor, and 7s. where these are supplied by chemists. The experience of the National Deposit Friendly Society, with a membership numbering over 200,000, is that under the system of payment by attendance a sum of 4s. per head per annum has been more than sufficient to pay the claims of the members for medical attendance. Under the National Insurance scheme it is possible that the payments to doctors may exceed those hitherto paid by the National Deposit Friendly Society by at least 75 per cent. I would ask my professional brethren, therefore, whether the offer of payment by attendance should not be accepted, subject to certain concessions, such as the right to refuse one's services under a lower scale of fees than those usually expected from private patients.

"By accepting the offer we should strike a death blow to the objectionable capitation system. Should we reject the offer the alternatives, are a State Medical Service or the handing over of the sum set apart for medical remuneration to the Approved Societies, either of which would

it is to be feared, be ruinous to a large number of medical men who are now doing good and successful work as general practitioners."

THE RESIGNATION OF SIR JOHN COLLIE FROM THE ADVISORY COMMITTEE.

Sir John Collie has decided to resign his position as one of the Government nominees on the Advisory Committee of the National Health Insurance Act. He writes to us as follows:

Up till now I had hoped and believed I might continue to be a real help to the profession by remaining at what I held to be a post of duty, when the ranks of the Committee were thinned by resignations.

I know (as only those on the Committee can know) that the labours of the last few months have not been altogether in vain; but, in view of the decision of the Representative Meeting of the profession, I have now handed in my resignation to the Chancellor of the Exchequer, for I feel that were I to continue on the Advisory Committee, I could render no further service to the medical profession, and my presence on it would be open to misconstruction.

THE MONTESSORI SYSTEM OF EDUCATION.

MUCH enthusiasm has been displayed in educational circles with regard to the system of education of young children, which of late years has been developed in Rome by the Dottoressa Maria Montessori, whose treatise on the subject, translated by Miss Anne E. George, has recently been published in England.[1] As the author is not merely a teacher, but the first woman to receive the degree of M.D. from the University of Rome, and her work bears the sub-title of "Scientific Pedagogy as Applied to Child Education," we think that a notice of the methods of which she is the talented exponent may be of interest to our readers. The occasion of a conference organised by the Child Study Society, London, jointly with the newly formed Montessori Society of the United Kingdom, preceded by a lecture by Madame Pujol-Ségalas, of Paris, on the principles of the system, give an opportunity of reporting the opinions of some leading educationists on the subject. The attendance at this lecture on Nov. 15th was so large that it necessitated the repetition of the lecture to a second audience, and on Nov. 16th so numerous were those eager to take part in the discussion that the chairman, Sir John A. Cockburn, M.D., was obliged to limit each speaker to five minutes.

The lecture was presided over by Mr. R. Blair, Education Officer of the London County Council.

Main Points of Montessori System.

Madame Pujol-Ségalas's chief points were the similarity of the basic principles of Froebel's philosophy and the scientific experiments of Montessori—viz., the necessity to take "nature as a guide" in endeavours to create conditions favourable to the child's mental and physical development. She contended that while free play or spontaneous work of the faculties in the child had been admitted by Froebelians as desirable, this object had rarely been obtained in practice. The pupil should not be made a slave to formal adult instruction, which only caused a deformation of the natural working of the child's mind; but self-education, the kernel of the Montessori method, implied placing the child in the most favourable conditions to educate himself. To obtain success a beginning must be made early, and the period from three to seven years of age is more or less decisive. Montessori schools are laboratories of experimental psychology in the truest sense of the expression. The moral aspect of self-education from an early age in giving scope to self-control is an important feature. The Montessori "didactic material" saves energy on the part of pupil and teacher, and increases the creative and constructive faculty of the former by rendering classification easy. The sensorial exercises presented to the pupil tend to productiveness gratifying to child-consciousness; and learning to read and write follow these naturally through the aids the didactic apparatus affords. The master principle of the Montessori system is that of self-development in an atmosphere of freedom, the only limit recognised being that no child in the exercise of his own freedom shall interfere with that of others. It will be understood that under such conditions the personality of the teacher counts for much. A demonstration of the "pedagogical material" showed a variety of appliances, modelled to a great extent on those devised long ago by Séguin for the sensorial training of imbeciles, including wooden blocks of various forms, cubes, cylinders, &c., and geometrical insets which the child fits into appropriate cavities in simple apparatus after the manner of a "puzzle." These educational toys call into play the tactile and muscular sense and the psycho-motor activities, and by an ingenious device of sand-paper letters in slight relief the child is led to appreciate (and ultimately, so to say, to absorb) through the finger-tips alphabetical forms, both printed and script, so as to be able to reproduce them, thus teaching itself without effort the rudiments of reading and writing. Number is taught objectively by a system of graduated and parti-coloured rods which the child arranges in the form of steps, thus attaining a notion not only of the value of figures but of dimensions.

Views of Various Speakers.

At the conference successive speakers expressed very varied views as to the relative value of Froebelian and Montessorian methods. Thus Miss E. E. Lawrence and Miss Murray (representing Froebel Institutions) pointed out the advantages their kindergarten children had not only from receiving sense impressions but from appeals to their reasoning and imaginative powers, together with pleasing "occupations," which at once called into play the tactile and visual senses; whilst Montessorian advocates (including Miss Lidbetter and Mr. Bertram Hawker) laid stress on the importance of letting each child work out its own educational salvation through its individual spontaneous activity with as little guidance as possible on the part of the teacher, whose function was mainly to observe rather than to direct, except in the way of friendly advice. Dr. G. E. Shuttleworth referred to Séguin's system of physiological education, which, as applied to the training of mentally deficient children on the lines laid down by him over 60 years ago—i.e., that "the physiological education of the senses must precede the psychical education of the mind"—had produced admirable results, and seemed appropriate to the preliminary stages of normal infant education also, especially with the modified and improved apparatus of the Montessorian system. Dr. Eric Pritchard spoke of the importance of the teacher's personality as an element of success, which depended much on the power of suggestion in influencing the pupil rather than upon forms of apparatus merely or "systems" of instruction.

The discussion served to show the growing interest in physiological and psychological science which is gradually permeating the minds of practical educationists, and members of the medical profession as well as teachers will find profit if able to avail themselves of the meetings of the Child Study Society, the London section of which meets fortnightly during the winter for the consideration of subjects affecting child development at the Royal Sanitary Institute premises, 90, Buckingham Palace-road, S.W.

[1] The Montessori Method, by Maria Montessori. Translated from the Italian by Anna E. George, with an introduction by Professor H. W. Holmes, of Harvard University. London: William Heinemann. 1912.

PRESENTATIONS TO MEDICAL MEN.—At a complimentary reception given by the President and Council of the South Western Divisional Union of the Young Men's Christian Association, Lord Kinnaird, on behalf of the subscribers, presented Mr. C. A. Hingston, M.D. Lond., of Plymouth, with an album as a slight expression of gratitude for his invaluable work in the past 28 years as president of the South-Western District Union of the Young Men's Christian Association.—On Nov. 5th the employees of the Torre and Torquay Railway Stations of the Great Western Railway presented Mr. Alfred Wightwick, M.B., Ch.B. Vict., with a silver-mounted walking-stick, in appreciation of his services as honorary instructor of the St. John Ambulance Class at Torre.—At Yealmpton (Devon), Mr. William Southmead Langworthy, L.R.C.P. Lond., M.R.C.S. Eng., was presented with a silver spirit kettle, a walking-stick, and an illuminated address as a mark of respect and esteem on the occasion of his leaving Yealmpton after having practised there for the past 17 years. Mrs. Langworthy was given a handbag. The members of the Rational Sick and Burial Association presented Mr. Langworthy with a smoker's cabinet.

Medical News.

ROYAL COLLEGES OF PHYSICIANS OF LONDON AND SURGEONS OF ENGLAND.—At a meeting of the Comitia of the Royal College of Physicians on Oct. 31st and of the Council of the Royal College of Surgeons on Nov. 14th, diplomas of L.R.C.P. and M.R.C.S. were respectively conferred upon the following gentlemen who have passed the Final Examination in Medicine, Surgery, and Midwifery of the Examining Board in England and have complied with the necessary by-laws:—

Arthur Ashmore, Leeds University and Westminster Hospital; Edward Bach, Birmingham University and University College Hospital; *Narayan Krishna Bal, Bombay University and Middlesex Hospital; Herbert Rowse Bastard, Guy's Hospital; George Ernest Beaumont, B.A. Oxon., Oxford University and Middlesex Hospital; Percy Lytton Tempest Bennett, London Hospital; Lancelot Gerard Bourdillon, St. Thomas's Hospital; Ralph St. Leger Brockman, B.A. Cantab., Cambridge University and St. Bartholomew's Hospital; Robert Graham Brown, Sydney University and London Hospital; Eustace Norman Butler, B.A. Cantab., Cambridge University and St. Thomas's Hospital; Lionel Thomas Challenor, Manchester University; Percival Courtenay Cole, St. Bartholomew's Hospital; Lionel Gordon Crossman, B.Sc. Lond., St. Bartholomew's Hospital; Kaye Farquhar Rashell Davison, Westminster Hospital; Alfred Evan Lewis Devonald, L.M.S.S.A., Cork, King's College and St. George's Hospital; George Rowland Dobrashian, University College Hospital; Subramanya Doraisamy, Madras University and Middlesex Hospital; Frederic Nicklin Doubleday, L.D.S. Eng., Guy's Hospital; Frederick Percy Duncan, University College Hospital; Walter James Ignatius Dwyer, London Hospital; Thomas Leslie Ellis, St. George's Hospital; Maberly Squire Esler, St. Thomas's Hospital; Bernard Creasy Ewens, B.A. Cantab., Cambridge University and St. George's Hospital; Edward Garlick Fisher, B.A. Cantab., Cambridge University, St. Thomas's Hospital and Liverpool University; Walter Barham Foley, St. Thomas's Hospital; William Kelsey Fry, Guy's Hospital; Vraspillai Gabriel, L.M. & S. Ceylon, Ceylon Medical College and London Hospital; George Edward Genge-Andrews, Guy's Hospital; Douglas Medlicott Gibson, St. Thomas's Hospital; †Edward Alexander Marie Joachim Goldie, University College Hospital; Richard Sydney Graham, St. Mary's Hospital; John Greene, Birmingham University; Matthew Joseph Haffey, M.B. Toronto, Toronto University and University College Hospital; Denys Bouhier Imbert Hallett, B.A. Oxon., and William John Hart, B.A. Oxon., Oxford University and St. Thomas's Hospital; Harold Harvey, L.D.S. Eng., Birmingham University; Harold James Beresford Heelas, Middlesex Hospital; Cyril Helm, B.A. Cantab., Cambridge University and Middlesex Hospital; Harry James Hoby, New Zealand and Guy's Hospital; Robert Lister Horton, University College Hospital; David Edward John Stopford Hughes, St. Bartholomew's Hospital; Albert Jackson, B.A. Oxon., Oxford University and St. Thomas's Hospital; Edmund Basil Jardine, University College Hospital; Drue Drury Butler Jay, Cambridge University and St. Bartholomew's Hospital; Henry Wallace Jones, M.Sc. Liverp., Liverpool University; Richard Arthur Jones, L.S.A., Charing Cross Hospital, Liverpool University, and St. Mary's Hospital; Skene Keith, Guy's Hospital; Cornelius Kennedy, Liverpool University; William Joseph Teil Kimber, St. Thomas's Hospital; Gustav Adolf Maximilian Leopold, M.D. Tübingen, Tübingen and Berlin Universities; Thomas Percy Lewis, St. Mary's Hospital; John Burman Lowe, M.B., Ch.B. Birm., Birmingham University; William Charles Drayson Maile, B.A. Cantab., Cambridge University and Guy's Hospital; *Crawford Clelland Marshall, M.B., B.S. Melb., Melbourne University and Middlesex Hospital; Lionel Arthur Martin, University College Hospital; George Oliver Maw, B.A. Cantab., Cambridge University and St. Bartholomew's Hospital; *Jivraj Narayan Mehta, L.M. & S. Bombay, Bombay University and London Hospital; Nanalal Maganlal Mehta, Bombay University and Middlesex Hospital; Robert Hamilton Miller, M.R.C.V.S., Edinburgh University; Godfrey William Mitchell, B.A. Cantab., Cambridge University and St. George's Hospital; Stylianos George Papadopoulos, St. Bartholomew's Hospital; Sydney Goodman Platts, B.A. Cantab., Cambridge University and St. Thomas's Hospital; Edward Gordon Reeve, Guy's Hospital; Walter Rupert Reynell, B.A. Oxon., Oxford University and Guy's Hospital; John Frederick Gwyther Richards, Guy's Hospital; Ivor Ridge-Jones, Cambridge University and St. George's Hospital; George Henry Roberts, St. Thomas's Hospital; William Robinson, Guy's Hospital; Henry Colwell Rook, Guy's Hospital; George Andrew Russell, Birmingham University; Charles Meadows Ryley, Cambridge University and Guy's Hospital; *John Godfrey Saner, B.A. Cantab., Cambridge University and Guy's Hospital; Ratnasothy Saravanamuttu, M.B., C.M. Madras, Madras University and London Hospital; Frank Ramsay Scott, M.B. Toronto, Toronto University and Middlesex Hospital; Alexander Stanger Seabrooke, B.A. Cantab., Cambridge University and Guy's Hospital; Humfrey Newnham Sealy, B.A. Cantab., Cambridge University and London Hospital; William James Dobson Smyth, B.A. Cantab., Cambridge University and Guy's Hospital; Louis Bruce Stringer, Guy's Hospital; Alan Lee Sutcliffe, B.A. Cantab., Cambridge University and St. Thomas's Hospital; William Frank Thompson, B.A. Cantab., Cambridge University and St. Bartholomew's Hospital; Harold Eustace Thorn, St. George's Hospital; *William Clair Toll, M.B. Toronto, Toronto University and Middlesex Hospital; Dudley Beckit Truman, King's College Hospital; Carl Rudolf Baltzar von Braun, St. Bartholomew's Hospital; John Raymond Waddy, Cambridge University and King's College Hospital; Godfrey Alan Walker, London Hospital; Herbert Walker, B.A. Cantab., Cambridge University and St. Thomas's Hospital; * John Forbes Ward, M.B., Ch.B. Manch., Manchester University; Martin Herbert Watney, B.A. Cantab., Cambridge University and St. Thomas's Hospital; Walter Geoffrey Watson, Cambridge University and St. George's Hospital; William Leslie Webb, Guy's Hospital; Harald Norris Webber, Cambridge University and University College Hospital; *George Jamieson Whetham, M.B. Toronto, Toronto University, University College, and Middlesex Hospital; Alan Wilson, University College Hospital; Eric Wordley, B.A. Cantab., Cambridge University and St. Thomas's Hospital; and Alberto Medardo Zamora, Cambridge University and Guy's Hospital.

* M.R.C.S. diploma previously conferred.
† L.R.C.P. diploma not yet conferred.

At an examination in Diseases and Hygiene of the Tropics, the Colleges conferred the diploma upon the following candidate:—

Eric Stewart Marshall, L.R.C.P., M.R.C.S., of St. Bartholomew's Hospital and London School of Tropical Medicine.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.—At the Primary Fellowship Examination in Anatomy and Physiology, held on Nov. 7th, 8th, 12th, 13th, 14th, and 15th, 116 candidates presented themselves, of whom 22 per cent. were approved and 78 per cent. were rejected. The successful candidates were:—

Benjamin Biggar, M.R.C.S., L.R.C.P., St. Bartholomew's Hospital; John Brentnall Stanley, M.R.C.S., L.R.C.P., Birmingham University and St. George's Hospital; Andrew Russell Bearn, M.D., B.Ch. Edin., Edinburgh University and London Hospital; Alec Antony Lees, B.A. Cantab., Cambridge and Birmingham Universities; John Berry Haycraft, M.B., B.Ch. Edin., University College, Cardiff, Edinburgh University and King's College; James Couper Brash, M.A., B.Sc., M.B., Ch.B. Edin., Edinburgh and Leeds Universities; Robert Andrew Kerr, M.B., B.Ch., B.A.O., Royal University of Ireland, Queen's University, Belfast; Donald Watson, M.B., Ch.B. Edin., Edinburgh University and Middlesex Hospital; Vraspillai Gabriel, L.M.S., M.R.C.S., L.R.C.P., Ceylon Medical College and London Hospital; Geoffrey Challen Linder, St. Bartholomew's Hospital; Abraham Stephen Liebson, B.A. Cape University, Guy's Hospital; Ernest Cordley Bradford, B.A. Cantab., Cambridge University and St. Bartholomew's Hospital; Edwin Douglas Pullon, B.Sc., M.B., Ch.B. Edin., Edinburgh University and Middlesex Hospital; Martin Wright Kidman Bird, B.A. Cantab., Cambridge University and St. Bartholomew's Hospital; John Oscar Thomas, King's College and Westminster Hospital; Dudley Denham Pinnock, M.B., B.S. Melbourne, M.R.C.S., L.R.C.P., Melbourne University and Middlesex Hospital; John Wilson Tonks, B.A. Cantab., M.R.C.S., L.R.C.P., Cambridge University and University College Hospital; Frederick Jasper Anderson, M.B., B.S. Lond., M.R.C.S., L.R.C.P., St. Bartholomew's Hospital; Matthew William Baillie Oliver, M.A., M.B., B.C. Cantab., M.R.C.S., L.R.C.P., Cambridge University and St. Mary's Hospital; Philip Stanley Foster, M.B., Ch.B. Otago, M.R.C.S., L.R.C.P., Otago University and London Hospital; Stanley Eric Vincent Brown, M.B., Ch.B. Otago, M.R.C.S., L.R.C.P., Otago University, London and Middlesex Hospitals; Rhys Trevor Jones, B.Sc., University College, Cardiff, and St. George's Hospital; Alan Cecil Perry, London Hospital; Sydney Howard Hodges, King's College; Samuel Walter Maslen Jones, Middlesex Hospital; and Gilbert Charles Chubb, M.B., B.S., D.Sc. Lond., M.R.C.S., L.R.C.P., University College Hospital.

The Council also conferred the under-mentioned diplomas upon the following gentlemen who have complied with the by-laws:—

Diploma of Fellow.—Arthur Gordon Haynes Lovell, M.B., B.S. Lond., M.R.C.S., L.R.C.P., St. Mary's Hospital.

Licence in Dental Surgery.—Harold Henry Bond, B.D.S. Syd., Sydney, Philadelphia, Rome, Charing Cross, and Royal Dental Hospital; Edwin Llewellyn Zenas Fickling, St. George's and Royal Dental Hospitals; Wilfred Woolfe Miron, Middlesex and National Dental Hospitals; Ernest Victor Breen Turner, Liverpool University; and Thomas Bernice Tustian, Cardiff and Guy's Hospital.

The following are the names of the successful candidates at the First Professional Examination for the Licence in Dental Surgery, just completed:—

Mechanical Dentistry and Dental Metallurgy.—William Richard Bailey, Pennsylvania University; Reginald James Robinson Baker, Liverpool University; James Millard Barnes, Guy's Hospital; Albert Edward Barnett, Birmingham University; Reginald Gordon Bradley and Arthur Bulleid, Guy's Hospital; Edwin Alfred Clegg, Royal Dental Hospital; Donald Clewer, Guy's Hospital; Walter Lawton Cocker, Royal Dental Hospital; Walter Ernest Coe, Guy's Hospital; Herbert Ronald Cullwick, Birmingham University; John Kelvin Edwards, Liverpool University; Julius Gillis, Sydney Nuttall Hayes, Gawin Herdman, and William Kenneth Talbot Hope, Royal Dental Hospital; Henry Jennings, Liverpool University; Ralph Lea Klosz, Royal Dental Hospital; Eustace Fernando Llarena and Kenneth Fergus McAlpin, Guy's Hospital; Harold Frederick Metcalf, George Douglas Moore, and John William Welsh Newsome, Royal Dental Hospital; Frank Henry Parsonage, Manchester University; Ernest Noble Perham National Dental Hospital; Ernest Russell Ray, Royal Dental Hospital; Louis Philip Richards, Guy's Hospital; Roy Oswald Shilton, Birmingham University; Frederick Elliott Smith, National Dental Hospital; Vernon John Thurston, Royal Dental Hospital; Arthur Herbert Virgin, Bristol University; Frank Edward Welton, Guy's Hospital; Clarence Leslie Brunel White, Royal Dental Hospital; Maurice George Whitten, Guy's Hospital; and Sydney Molero Wright, National Dental Hospital.

Mechanical Dentistry.—Gerald Beaumont Ash, Royal Dental Hospital; John Walter Peacock, Guy's Hospital; Stanley Bremner,

Liverpool University; Kenneth Charles Brough, Guy's Hospital; William Milton Bull, London Hospital; John Leycester Dudley Buxton, Royal Dental Hospital; Henry Robert Pyemont Collett, Manchester University; Sidney John Vaughan Cox-Moore, Royal Dental Hospital; Herbert Carr Duggan, Victor Dyke, and Herbert James Edwards, Guy's Hospital; Harold Mayston Fisher, Royal Dental Hospital; Frank Keith Hayman, Bristol University; Maurice George Henry and George Hubert Howe, Guy's Hospital; Harry Austin Hutson and Reginald John Inder, National Dental Hospital; William Anthony Johns, Royal Dental Hospital; Sydney Emil Johnson, Percy King, Charles Hardiman Laver, and William George Lloyd, Guy's Hospital; Sidney McCallin, Chicago University; Lionel Everitt Markham, Durham University; Eric Carson Nicholls, Guy's Hospital; Winifred Amelia Oaten, National Dental Hospital; Earl Leslie Robert, Royal Dental Hospital; Eric Wesley Thomas, Bristol University; and Ronald Harold Vivian Whybro, Royal Dental Hospital.

Dental Metallurgy.—Ronald William Anderson-Jardine, National Dental Hospital; Frederick James Arbery, Arthur Bramston Austin, and Reginald Naunton Bates, Royal Dental Hospital; Douglas Arthur Bevis, Guy's Hospital; Henry Walter Breese, Royal Dental Hospital; Cyril Montague Bullpitt, Guy's Hospital; James Arthur Balfour Carson, Royal Dental Hospital; William Robert Davies, Liverpool University; Leonard Snowden Debenham, Guy's Hospital; John William Edgar, National Dental Hospital; Stephen Alphonsus McCormack, Royal Dental Hospital; George Francis Maguire, Leeds University; Thomas Dickson Muirhead, Royal Dental Hospital; Joshua Laurence Oates and Herbert Percy Parkes, Guy's Hospital; Reuben Woodland Payne, Royal Dental Hospital; Dudley George Pearce and Reginald Jack Pickett, Guy's Hospital; Eric Vincent Pollitt, Manchester University; Horace James Procter, Leeds University; William John Ross, Liverpool University; George Herbert Heywood Russell, M.B., Ch.B. Manch., Manchester University; Leonard Smith, Birmingham University; Willem Jacobus Rousseau Viljoen, Guy's Hospital; and Marjorie Jane White, Bristol University.

UNIVERSITY OF LONDON.—The following University medals in connexion with the M.D. examination for internal and external students, July, 1912, have been awarded:—University medal in Branch I. (Medicine), Mr. Theodore Stewart Lukis, B.S., St. Bartholomew's Hospital; University medal in Branch IV. (Midwifery and Diseases of Women), Mr. George Maxted, B.S., Guy's Hospital.—On Jan. 22nd and 24th, 1913, at 5 P.M., two lectures under the Semon Lecture Trust will be delivered at University College by Dr. Peter McBride. The subject of the lectures will be "Sir Felix Semon, his Work, and its Influence on Laryngology." The lectures will be the first to be delivered under the foundation established in 1911 by Sir Felix Semon, K.C.V.O., M.D., who transferred to the University for the foundation of a lectureship and medal in laryngology a sum of money amounting to £1040, presented to him by the British laryngologists on his retirement from practice. Admission to the lectures will be free, by ticket obtainable from the Secretary of University College, Gower-street, W.C.

EAST SUSSEX AND SANATORIUM TREATMENT.—The East Sussex county council has approved in principle its scheme prepared by Mr. A. G. R. Foulerton, medical officer of health, for providing sanatorium benefits under the National Insurance Act, but before finally committing itself to what the chairman of the committee termed a scheme "full of complications and difficulties," has decided to obtain additional particulars as to the cost. The expense of carrying out the dispensary and hospital treatment is estimated at £2165, and the cost of providing dispensary accommodation £540, or £1140 if it is deemed expedient to erect temporary buildings instead of renting premises. The scheme further provides for the appointment of the county medical officer of health as the executive officer for the purposes of the tuberculosis scheme at a salary of £25 a year, and to be allowed an additional sum of 50 guineas in consideration of the great amount of his work in the preparation and bringing the scheme into operation; the appointment of Dr. Arthur Beeley, assistant county medical officer of health, as dispensary tuberculosis officer at a salary of £400 a year, £300 as tuberculosis officer, and £100 as assistant county medical officer of health; a dispensary nurse at £100 a year; and £50 to the county medical officer of health for travelling expenses and petty cash disbursements up to the quarterly meeting of the council in February. The council also had before it an estimate for providing a joint sanatorium at a cost of £19,959, but it is hoped that arrangements will be made for sanatorium treatment in established institutions rather than having to incur so large an expenditure. Conferences have been held with the West Sussex county council and the county boroughs of Hastings and Eastbourne, so far without any definite result.

MEDICAL MAYOR.—Mr. Maurice John Doidge, M.D. Brux., M.R.C.S. Eng., L.S.A., has been re-elected Mayor of Glastonbury (Somerset).

A BRISTOL CENTENARIAN.—Mrs. Harriet Wellinger died at her residence, 209, Cheltenham-road, Bristol, on Nov. 10th, in her 103rd year.

DONATIONS AND BEQUESTS.—The late Alderman A. Cortis, of Worthing, has bequeathed by will £2000 each to the Sussex County Hospital and the Worthing Hospital.—Under the will of the late Mrs. H. Todd, of Bognor, Charing Cross Hospital, Chichester Infirmary, and Epsom College will each receive £1000.—By the will of the late Mr. Herbert Sayer Tew, the testator bequeathed £10,000 to the Clayton Hospital, Wakefield, and £5000 to the Pontefract General Dispensary.—The Queen's Hospital for Children, Hackney-road, has received a further grant of £1000 from the *Referee* Children's Fund towards the building and maintenance of the *Referee* Ward at the hospital's seaside branch at Bexhill.—The Chelsea Hospital for Women has received for its rebuilding fund £20 from Her Majesty Queen Alexandra, £100 from Major-General R. C. B. Pemberton, C.B., C.S I., and £50 from Major F. C. Foster and Mr. Miguel Lacroze.

LADIES' GUILD OF ST. THOMAS.—The eighth annual meeting of this guild was held in the Governors' Hall of St. Thomas's Hospital on Nov. 12th. Adeline, Duchess of Bedford, presided, and 200 members and friends were present. Mrs. Ballance read the report of the committee on behalf of the honorary secretary, Mrs. Battle. The report was a very satisfactory one, telling of steady progress in the quality and quantity of the work done by the guild. 2847 garments had been provided in the year, adding immensely to the comfort of the patients in the wards, and enabling many of them to go on from the hospital to convalescent homes and sanatoriums, thus in many cases very greatly increasing their chance of a quick and complete recovery. Excellent work had been done for the guild by the branch working parties in different parts of the country. The Duchess of Bedford, in moving the adoption of the report and balance-sheet, expressed a hope that the deficit of £10 would soon be covered by increased donations to the guild, and congratulated the workers on the exceptional quantity of garments sent in. The following officers and members of the executive committee were elected for the ensuing year:—Chairman of committee: Mrs. Ballance. Committee: Mrs. Percy Smith, Mrs. B. R. Thorne, Mrs. Benson, Miss G. Lawford, Mrs. Corner, Mrs. Belfrage. Honorary secretary: Mrs. Battle. Honorary treasurer: Miss South. Honorary work secretary: Miss Clerk. Mr. Wainwright expressed his gratitude, as treasurer of the hospital, for the great help received from the Ladies' Guild, which made so strongly for the greater comfort of the patients and the efficiency of the hospital. After the meeting many members and their friends visited the wards of the hospital.

Parliamentary Intelligence.

NOTES ON CURRENT TOPICS.

The Parliamentary Crisis.

THE Parliamentary crisis arising out of the defeat of the Government on Sir F. BANBURY'S amendment and the subsequent scenes of disorder has expended itself. The way out of the difficulty suggested by the Speaker has been taken, and the debates on the Home Rule Bill have been resumed.

The Mental Deficiency Bill.

It is now certain that, unless events take a very unexpected turn, the Mental Deficiency Bill will not be placed on the Statute Book this session. Several sittings of the Standing Committee which is considering it will take place, but the Home Secretary has intimated that he does not contemplate carrying it beyond the committee stage this year. The Bill as amended, however, will be reintroduced next session.

A declaration of the intentions of the Government in respect to it was made at the meeting of the Standing Committee on Tuesday, Nov. 19th.

Mr. LESLIE SCOTT asked the Home Secretary whether it was still the intention of the Government to pass the Bill into law this session according to their promise.

Mr. MCKENNA replied that it was perfectly true that the Government had promised to pass the Bill into law this session. That understanding must, of course, be read in the light of what had happened in the House of Commons last week. He wished to make it perfectly clear that in consequence of these events time would have to be taken away which had been intended to be given to the consideration of this and other measures in the House. He had consulted the Prime Minister, and he was bound to inform the committee that the prospects, which seemed to him so hopeful a little while ago, of carrying this measure this session existed no longer. He would therefore ask the committee to consider whether they might not still take advantage of their considerable knowledge of the business in hand in order to facilitate the introduction of the same or a similar measure next session. He recognised that although the members of the committee had discussed only three clauses of the Bill, those clauses were vital. The structure of the Bill was now quite different from what it was when originally introduced, and he wished to express his gratitude to members on both sides who had combined to make this Bill a workable and comprehensive measure. He suggested that the committee might have two or three more meetings on which they might discuss Clause 12, which dealt with the duties of local authorities under the Bill, and perhaps Clause 20, which gave power to send defectives to institutions or to place them under guardianship, and also the financial part of the Bill. If that were done, he would be willing to introduce the Bill as amended next session. The committee would be thus able to renew its work without feeling that its labour this year had been lost.

Mr. STEEL-MAITLAND considered that the mishap of the Government on a highly controversial measure would not have affected in any way the validity of the undertaking of the Government on a purely non-party matter.

Mr. MCKENNA, replying to a lively discussion, said that he would consult with Members representing the different views with regard to which clauses they should proceed with. He would propose that they should meet on not more than three occasions, and he promised he would bring in the amended Bill as early as possible next session.

The committee adjourned.

HOUSE OF COMMONS.

WEDNESDAY, NOV. 13TH.

Native Medical Men in West Africa.

Mr. MACCALLUM SCOTT asked the Secretary of State for the Colonies how many European and non-European medical men respectively were in the medical service of the Government in the British Colonies of West Africa.—Mr. L. HARCOURT replied: The numbers (including those employed in the British Protectorates) are respectively 206 and 8.

Mr. MACCALLUM SCOTT asked whether any medical men, and, if so, how many, in the service of the Government in the British Colonies of West Africa were permitted to engage in an outside practice, and whether they were further enabled to compete with non-European medical men by using Government drugs, which were obtained at a lower price than they could be purchased in the open market.—Mr. L. HARCOURT answered: The number of Government medical officers in the British West African dependencies who are allowed private practice is 189 (including eight non-Europeans). In Sierra Leone, the Gold Coast, and Southern Nigeria, they are allowed to use in their private practice drugs from the Government stores on payment. The rates charged are calculated at an amount varying from 25 to 35 per cent. over cost price, and in the opinion of the local administrations, with whom I have recently been in correspondence on this subject, there is no reason to suppose that this system gives the Government officers any advantage over private practitioners.

Mr. MACCALLUM SCOTT further asked whether natives in the employ of the British Government in West Africa were compelled to accept the services of a European medical attendant, or whether they were allowed to avail themselves of the services of fully qualified non-European medical man.—Mr. L. HARCOURT said in reply: Natives in the employ of the British Government in West Africa receive gratuitous attendance from Government medical officers. The allocation of this duty to individual medical officers is a matter of local administration. I have no information as to the extent to which the patient is allowed to exercise a choice of medical officer where opportunities for such choice exist.

Mr. MACCALLUM SCOTT also asked how many hospitals in British West African colonies had, and how many had not, attached to them qualified medical attendants other than European.—Mr. L. HARCOURT replied: I regret that I am unable to furnish the information asked for by my honourable friend. The duties and stations of medical officers in West Africa vary continually, and are determined by the local administration in accordance with local exigencies.

THURSDAY, NOV. 14TH.

Sanatoriums under the National Insurance Act.

Lord NINIAN CRICHTON-STUART asked the President of the Local Government Board how many sanatoriums had been built under the National Insurance Act; how many were in course of erection; and for how many plans had been passed by the Commissioners under the Act.—Mr. BURNS said in reply: The Local Government Board have approved under the National Insurance Act 117 sanatoriums and hospitals containing 4597 beds. The erection of new sanatoriums and the extension of existing buildings are now under consideration generally by local authorities, who are formulating complete schemes for the treatment of tuberculosis.

The Treatment of Tuberculous Persons.

The Earl of KERRY asked the Secretary to the Treasury whether any scheme made by a county committee on the basis of the 1*s.* 3*d.* per insured person plus a county rate for the treatment of all tuberculous persons in that county had been rejected by the Insurance Commissioners on the ground that 6*d.* out of the 1*s.* 3*d.* must remain intact for the purpose of domiciliary treatment.—Mr. MASTERMAN stated in reply: The Insurance Commissioners have not rejected for the reason indicated any scheme of arrangements proposed to be made by an Insurance Committee with a county council. They have, however, found it necessary in some cases to advise Insurance Committees that such arrangements must be framed with due regard to the proposal that 6*d.* out of the 1*s.* 3*d.* per insured person available for sanatorium benefit shall after Jan. 12th next be allocated to that part of sanatorium benefit which consists of domiciliary treatment.

Replying to the Earl of KERRY, Mr. MASTERMAN wrote: All the County Insurance Committees in England have submitted to the Commissioners arrangements for the provision of sanatorium benefit. In all but one of these the arrangements for the treatment of persons recommended for the benefit have been approved by the Commissioners. In Scotland 25 County Insurance Committees have submitted schemes, of which 22 have received full and 1 partial approval, while the remaining 2 are under consideration. In Ireland 28 County Committees have submitted schemes, of which all have received approval so far as they relate to treatment in sanatoriums. In Wales all the County Committees have submitted schemes and received approval for them. In the few cases in which no schemes have yet been submitted the Insurance Commissioners are in communication with the Insurance Committees on the subject.

Attendance on Insured Persons.

Sir PHILIP MAGNUS asked the Secretary to the Treasury whether, for the purposes of the National Insurance Act, he would define what was meant by whole-time service; whether a person having an income of say £300 a year, who accepted a position as secretary, the hours of service being from 10 to 4, at a salary of £150 a year, was compelled to insure; and whether, in that case, a medical practitioner, having agreed to take service under the Act, was required regularly to attend such person when ill for the sum of 7*s.* a year.—Mr. MASTERMAN replied: The question of the correct interpretation of the "whole-time service" in paragraphs (*g*) of Part II. of the First Schedule of the Act rests primarily in any specific case with the Commission acting judicially and upon consideration of evidence. Any person or his employer may apply for a formal decision of the Insurance Commissioners under Section 66 of the Act upon this point, and it would be impossible to give an answer in the case referred to by the honourable Member with any certainty except upon a fuller statement of the facts than is possible within the limits of a reply to a question.

The Insurance Commissioners and Questions of Professional Discipline.

Sir PHILIP MAGNUS asked the Secretary to the Treasury whether he would take steps to secure that a medical practitioner who was struck off the panel by decision, after inquiry, of the Insurance Commissioners should have the right of appeal to a court of law.—Mr. MASTERMAN answered: No, Sir. Any decision of the Commissioners must be arrived at after due inquiry in accordance with the procedure laid down in the Medical Benefit Regulations; but the matter to be inquired into is of an administrative nature—viz., whether the continuance on the list would be prejudicial to the efficiency of the service. Section 15 (2) (b) of the Act represents the deliberate decision of Parliament which I have no power to reverse, that in any questions arising in this connexion an appeal to a court of law would not be possible, or if possible, would not be advantageous to the profession or the practitioner concerned. Questions of a professional nature affecting the status of the doctor as a registered medical practitioner will remain, as hitherto, in the province of the General Medical Council.

Miners' Accidents and the Insurance Act.

Mr. HANCOCK asked the Secretary to the Treasury whether an insured coal miner who met with a serious accident during his employment was entitled to any surgical, medical, or other assistance under the National Insurance Act.—Mr. MASTERMAN replied: The answer is in the affirmative.

MONDAY, NOV. 18TH.

Sanatorium Grants in Ireland.

Mr. LARDNER asked the Chief Secretary to the Lord Lieutenant of Ireland to give a list of all persons or organisations who had applied for or had received grants under the National Insurance Act for the establishment of sanatoria in Ireland, showing in each case the amount applied for and the amount granted.—Mr. BIRRELL wrote in reply: The Women's National Health Association has applied for £25,000, which has been granted. The committee of management of Newcastle Sanatorium have applied for £10,000, and the Local Government Board have intimated that any expenditure which the committee may undertake on behalf of county councils will, with the approval of these councils, be granted. The county councils have applied for a share of the grant on a basis of population, and the grants shown in the following statement have so far been approved subject to details of expenditure being in accordance with the Local Government Board's requirements:—

County area.	Share of £120,000, allocated on the basis of population. £ *s.* *d.*
Counties—	
Antrim	5,298 19 7
Armagh	3,287 19 5
Clare	2,849 0 6
Cork	8,621 16 7
Down	5,584 6 3
Dublin	4,712 2 7
Galway	4,980 16 4
Limerick	2,857 14 10
Longford	1,197 15 1
Mayo	5,252 17 4
Sligo	2,160 11 6
Tipperary (North Riding)	1,718 15 2
Tyrone	3,899 10 8
Wexford	2,795 9 7
Wicklow	1,659 8 10
County Boroughs—	
Belfast	10,576 12 3
Cork	2,095 14 10
Dublin	8,331 6 1
Limerick	1,052 16 8
Londonderry ...	1,114 13 2
Waterford	750 13 9

The Compulsory Notification of Ophthalmia.

Mr. POINTER asked the President of the Local Government Board whether he would state in how many districts he had sanctioned the compulsory notification of ophthalmia of the newly born, and what was the population of the districts; whether he proposed to make the disease compulsorily notifiable throughout the country; whether, having regard to the number of infants whose sight was lost or impaired through neglect of the disease, he was taking steps, under the provisions of the National Insurance Act, to extend sanatorium benefit to the disease; if not, whether he would consider the desirability of doing so; and whether it was proposed to make any Government grant to assist local authorities in making adequate provision for the treatment of the disease in the families of uninsured as well as of insured persons.—Mr. BURNS replied: I have sanctioned the compulsory notification of ophthalmia of the newly born in 216 districts with a population of 11,497,277, and I am considering the question of extending the requirement of compulsory notification of this disease to the whole country. There is no present intention of extending sanatorium benefit to this disease under the National Insurance Act or of making a grant in respect of treatment.

WEDNESDAY, NOV. 20TH.

Insured Persons and Tuberculosis.

Mr. ASTOR asked the President of the Local Government Board how many insured persons were examined for tuberculosis, and how many were diagnosed as having that disease in the period from July 15th to Oct. 15th, 1912.—Mr. MASTERMAN answered: I will reply to this question. The Insurance Commissioners are asking the Insurance Committees to furnish a return which will supply the information desired by the honourable Member up to date.

BOOKS, ETC., RECEIVED.

ALLEN, GEORGE, AND COMPANY, LIMITED, 44 and 45, Rathbone-place, London, W.

The Significance of Ancient Religions in Relation to Human Evolution and Brain Development. By E. Noel Reichardt, M.D. Lond. Price 12*s.* 6*d.* net.

ARNOLD, EDWARD, London.

The Sanitary Officer's Handbook of Practical Hygiene. By W. W. O. Beveridge, D.S.O., Lieut.-Col. R.A.M.C., M.B., C.M. Ed., D.P.H. Cambridge; Fellow of the Chemical Society; Analyst to the Army Medical Advisory Board; and C. F. Wanhill, Major, R.A.M.C., M.R.C.S. Eng., L.R.C.P. Lond., D.P.H. Conjoint Board of England; late Assistant Professor of Hygiene, Royal Army Medical College. Second edition. Price 6*s.* net.

The Carrier Problem in Infectious Diseases. By J. C. G. Ledingham, M.B., D.Sc., Chief Bacteriologist, Lister Institute of Preventive Medicine, London; and J. A. Arkwright, M.D., Assistant Bacteriologist, Lister Institute of Preventive Medicine, London. Price 12*s.* 6*d.* net.

The Protein Element in Nutrition. By Major D. McCay, M.B., B.Ch., B.A.O., M.R.C.P., I.M.S., Professor of Physiology, Medical College, Calcutta. Price 10*s.* 6*d.* net.

BAILLIÈRE, TINDALL, AND COX, London.

Papers on Psycho-Analysis. By Ernest Jones, M.D. Lond., M.R.C.P. Lond., Associate Professor of Psychiatry, University of Toronto, Secretary of the American Psycho-Analytic Association. Price 10*s.* 6*d.* net.

Veterinary Toxicology. By G. D. Lander, D.Sc., F.I.C., Professor of Chemistry and Toxicology, Royal Veterinary College, London. Price 7*s.* 6*d.* net.

BALE (JOHN), SONS, AND DANIELSSON, LIMITED, London.

The Internal Secretory Organs: their Physiology and Pathology. By Professor Dr. Artur Biedl, Vienna. With an Introductory Preface by Leonard Williams, M.D., M.R.C.P., Physician to the French Hospital. Translated by Linda Forster. Price 21*s.* net.

CASSELL AND COMPANY, LIMITED, London, New York, Toronto, and Melbourne.

Religion and Race-Regeneration. By Rev. F. B. Meyer, B.A. Price 6*d.* net.

Literature, the Word of Life or of Death. By William Canon Barry, D.D. Price 6*d.* net.

Morals and the Brain. By Sir Thomas Clouston, M.D., LL.D. Price 6*d.* net.

COLUMBIA UNIVERSITY PRESS, THE, New York. LEMCKE AND BUECHNER, 30-32, West 27th-street, New York. FROWDE, HENRY, Oxford University Press, Amen Corner, London, E.C.

Studies in Cancer and Allied Subjects. Pathology. Conducted under the George Crocker Special Research Fund at Columbia University. Volume II. Price 21*s.* net. (Vol. I., General Report on the Present Status of Cancer Knowledge. *In preparation.* Vol. III., Biology, Surgery, Biological Chemistry, and Clinical Pathology. *In preparation.* Vol. IV., Anatomy. *In preparation.*)

KIMPTON, HENRY, London.

Arteriosclerosis: Etiology, Pathology, Diagnosis, Prognosis, Prophylaxis, and Treatment. With a Special Chapter on Blood Pressure. By Louis M. Warfield, A.B., M.D., Assistant Superintendent and Resident Physician to Milwaukee County Hospital. With an Introduction by W. S. Thayer, M.D., Professor of Clinical Medicine, Johns Hopkins University. Price 10*s.* 6*d.* net.

LAURIE, T. WERNER, LIMITED, Clifford's Inn, London.

Old English Towns. Second Series. By Elsie M. Lang, Author of "Oxford Colleges," "Literary London," "Some Old English Abbeys," &c. Price 6*s.* net.

Antiques and Curios in our Homes. By G. M. Vallois. Price 6*s.* net.

LEWIS, H. K., London.

Surgery of the Brain and Spinal Cord. Based on Personal Experiences. By Prof. Fedor Krause, M.D., Geh. Medizinalrat, Dirigierender Arzt am Augusta Hospital zu Berlin. English Adaptation by Dr. Max Thorek (Rush M.C. Univ. of Chicago), Surgeon-in-Chief, American Hospital, Chicago, Ill.; Consultant, Cook County Hospital, Chicago, Ill. Volumes II. and III. Price 30*s.* each net.

LONGMANS, GREEN, AND CO., London, New York, Bombay, and Calcutta.

Modern Inorganic Chemistry. By J. W. Mellor, D.Sc. Price 7*s.* 6*d.*

METHUEN AND CO., LIMITED, London.

A Handbook of Physics. By W. H. White, M.A., B.Sc., A.R.C.Sc., Lecturer in Physics at the East London College and at St. Mary's Hospital Medical School, Examiner in London University. Price 7*s.* 6*d.*

NORONHA AND CO., Hong-Kong.

Far Eastern Association of Tropical Medicine. Transactions of the Second Biennial Congress held at Hongkong, 1912. Edited by Francis Clark, M.D., M.R.C.P., D.P.H., General Secretary of the Association; Medical Officer of Health (since 1895) of the Colony of Hongkong; Lecturer on Medical Jurisprudence and Dean of the Faculty of Medicine of the University of Hongkong. Price 10*s.* 6*d.*

PHARMACEUTICAL PRESS, THE, 72, Great Russell-street, London, W.C.

How to Become a Pharmacist in Great Britain. Edited by John Humphrey. Third Year of Publication. Price 1*s.* net.

PUTNAM'S SONS, G. P., London. HUEBSCH, B. W., New York.

Love and Ethics. By Ellen Key. Price 1*s.* net.

REID, ANDREW, AND CO., LIMITED, Newcastle-upon-Tyne.

University of Durham College of Medicine, Newcastle-upon-Tyne. Calendar for the Year 1912-1913. Price not stated.

SHAKESPEARE PRESS, 4, Sheep-street, Stratford-on-Avon.

Remembrances of a Religio-Maniac. An Autobiography. By D. Davidson. Price 3*s.* 6*d.* net.

SMITH, ELDER, AND CO., 15, Waterloo-place, London, S.W.

The Grip of Life. By Agnes and Egerton Castle. Price 6*s.*

SOUTHERN SURGICAL AND GYNÆCOLOGICAL ASSOCIATION. (William D. Haggard, M.D., Nashville, Tenn.)

Transactions of the Southern Surgical and Gynæcological Association. Volume XXIV. Twenty-fourth Session, held at Washington, D.C., December 12th, 13th, and 14th, 1911. Edited by W. D. Haggard, M.D. Price not stated.

STATE GAZETTE PUBLISHING CO., Trenton, N.J.

Thirty-fifth Annual Report of the Board of Health of the State of New Jersey, 1911, and Report of the Bureau of Vital Statistics. Price not stated.

THOM, ALEXANDER AND CO., LIMITED, Abbey-street, Dublin. LONGMANS, GREEN, AND CO., 39, Paternoster-row, London, E.C.

The National University of Ireland. Calendar for the Year 1912. Price not stated.

UNIVERSITY CORRESPONDENCE COLLEGE, Burlington House, Cambridge. 32, Red Lion-square, Holborn, London, W.C.

University Correspondence College. The Calendar, 1912-13. Price 1*s.* net.

UNIVERSITY OF CHICAGO PRESS, Chicago, Illinois. CAMBRIDGE UNIVERSITY PRESS, Fetter-lane, London.

Heredity and Eugenics. A Course of Lectures Summarising Recent Advances in Knowledge in Variation, Heredity, and Evolution and its Relation to Plant, Animal, and Human Improvement and Welfare. By William Ernest Castle, John Merle Coulter, Charles Benedict Davenport, Edward Murray East, William Lawrence Tower. Price $2.50 net or 10*s.* net.

UNIVERSITY OF LONDON, South Kensington, London, S.W.

University of London The Calendar for the Year 1912-13. Price 6*s.* net; postage 5*d.*

Regulations and Courses for Internal Students. For the Year 1912-13. Price not stated.

Regulations for External Students. September, 1912. Price 1*s.* 6*d.* net; postage 4*d.*

WRIGHT, JOHN, AND SONS, LIMITED, Bristol. SIMPKIN, MARSHALL, HAMILTON, KENT, AND CO., LIMITED, London.

Heredity, Evolution, and Vitalism: Some of the Discoveries of Modern Research into these Matters—their Trend and Significance. By Ronald Campbell Macfie, M.A., M.B., C.M. Price 6*s.* net.

Appointments.

Successful applicants for Vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward to THE LANCET *Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, such information for gratuitous publication.*

ENGLISH, THOMAS CRISP, F.R.C.S. Eng., M.B., B.S. Lond., has been appointed Surgeon to St. George's Hospital.

EVISON, F. A., M.R.C.S., L.R.C.P. Lond., has been appointed Certifying Surgeon under the Factory and Workshop Acts for the March District of the county of Cambridge.

FOX, W. T. B., M.B., M.S. Edin., has been appointed Certifying Surgeon under the Factory and Workshop Acts for the Blyth District of the county of Northumberland.

GAUNTLETT, E. GERALD, M.B., B.S. Lond., F.R.C.S. Eng., has been appointed Assistant Surgeon to the Paddington Green Children's Hospital, and Senior Surgical Registrar and Tutor at King's College Hospital.

GREER, M., L.R.C.P. Lond., has been appointed Certifying Surgeon under the Factory and Workshop Acts for the Corris District of the county of Merioneth.

JACKSON, D. J., M.D., B.Ch.R.U.I., has been appointed Second Assistant Medical Officer at the Mental Hospital, Whitchurch, Cardiff.

JEFFREY, GEORGE R., M.D. Glasg., F.R.C.P. Edin., has been appointed Physician-Superintendent to the Bootham Park Private Mental Hospital, York.

LEE, D. CHISHOLM, M.B. Edin., has been appointed Assistant Medical Officer at the Warneford Mental Hospital, Oxford.

LLOYD, BERTRAM ARTHUR, M.B., B.S. Lond., F.R.C.S. Eng., has been appointed Resident Medical Officer at Charing Cross Hospital.

LONG, H. B., M.R.C.S., L.R.C.P. Lond., has been appointed Certifying Surgeon under the Factory and Workshop Acts for the Bicester District of the county of Oxford.

PHILLIPS, G. R., L.R.C.P. Lond., M.R.C.S., has been appointed Anæsthetist to the Queen's Hospital for Children.

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index).

AYR DISTRICT ASYLUM.—Junior Assistant Physician. Salary £140 per annum, with board, lodging, and laundry.

BIRMINGHAM AND MIDLAND HOSPITAL FOR SKIN AND URINARY DISEASES.—Clinical Assistant for three months. Salary at rate of 52 guineas per annum.

BRIGHTON, ROYAL SUSSEX COUNTY HOSPITAL.—Assistant House Surgeon, unmarried. Salary £80 per annum, with apartments, board, and laundry.

BRISTOL ROYAL INFIRMARY.—Resident Casualty Officer for five months. Salary at rate of £50 per annum, with board, apartments, and laundry.

CANCER HOSPITAL (FREE), Fulham-road, London, S.W.—House Surgeon for six months. Salary £70 per annum.

CARDIFF, KING EDWARD VII.'s HOSPITAL.—Senior Resident Medical Officer. Salary £120 per annum, with board, washing, and apartments. Also Honorary Assistant Anæsthetist.

CARLISLE NON-PROVIDENT DISPENSARY.—Resident Medical Officer. Salary £150 per annum, with apartments.

CARMARTHEN, JOINT COUNTIES ASYLUM.—Second Assistant Medical Officer. Salary £160 per annum, with board, lodging, washing, &c.

CENTRAL LONDON SICK ASYLUM, Colindale-avenue, The Hyde, Hendon, N.W.—Assistant Medical Officer. Salary £120 per annum, with board and residence.

DUMFRIES, CRICHTON ROYAL INSTITUTION.—Second Assistant Physician, unmarried. Salary £200 per annum, with apartments, board, and laundry.

EAST LONDON HOSPITAL FOR CHILDREN AND DISPENSARY FOR WOMEN, Shadwell, E.—Medical Officer to the Casualty Department for six months. Salary at rate of £100 per annum, with luncheon and tea. Also House Physician. Salary at rate of £75 per annum, with board, residence, and laundry.

GLASGOW MATERNITY AND WOMEN'S HOSPITAL.—Two Outdoor House Surgeons. Also Female Outdoor House Surgeon at the West-end Branch. All for three months.

GREAT NORTHERN CENTRAL HOSPITAL, Holloway-road, London, N.—House Physician for eight months. Salary at rate of £40 per annum, with board, lodging, and laundry.

GUY'S HOSPITAL MEDICAL SCHOOL.—Gordon Lecturer on Pathology. Salary £600 per annum.

HAMPSTEAD, BOROUGH OF.—Tuberculosis Medical Officer. Salary £400 per annum.

HASTINGS, EAST SUSSEX HOSPITAL.—Assistant House Surgeon. Salary at rate of £70 per annum, with residence, board, and washing.

IPSWICH, EAST SUFFOLK HOSPITAL.—House Physician. Salary £80 per annum, with board, residence, and laundry.

ITALIAN HOSPITAL, Queen-square, W.C.—House Surgeon for six months. Salary £60 per annum, with board and residence.

KING'S COLLEGE.—Senior Demonstrator and Lecturer in Anatomy.

LEICESTER, LEICESTERSHIRE AND RUTLAND ASYLUM.—Junior Assistant Medical Officer, unmarried. Salary £150 per annum, with board, residence, and laundry.

LEWES VICTORIA HOSPITAL AND DISPENSARY.—Resident Medical Officer. Salary £120 per annum, with apartments, board, washing, attendance, &c.

LINCOLN COUNTY HOSPITAL.—Junior House Surgeon unmarried, for six months. Salary at rate of £100 per annum, with board, residence, and washing.

LIVERPOOL, STANLEY HOSPITAL.—Junior House Physician. Salary £75 per annum.

LONDON TEMPERANCE HOSPITAL.—Surgical Registrar. Salary at rate of 40 guineas per annum.

LOUGHBOROUGH AND DISTRICT GENERAL HOSPITAL AND DISPENSARY.—Resident House Surgeon. Salary £120 per annum, with rooms, attendance, board, and washing.

LOWESTOFT HOSPITAL.—House Surgeon, unmarried. Salary at rate of £100 per annum, with board, residence, and laundry.

MAIDSTONE, KENT COUNTY ASYLUM.—Fourth Assistant Medical Officer, unmarried. Salary £200 to £220 per annum, with quarters, attendance, washing, &c.

MANCHESTER NORTHERN HOSPITAL FOR WOMEN AND CHILDREN, Park-place, Cheetham Hill-road.—Honorary Assistant Surgeon for Women.

MIDDLESEX HOSPITAL, W.—Lecturer on Pharmacology.

MOUNT VERNON HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Hampstead.—House Physician. Salary £75 per annum, with board, residence, and washing.

NESTING AND LUNNASTING, AND PARISH OF NESTING, &C.—Medical Officer. Salary £50 per annum.

NEWARK-ON-TRENT HOSPITAL AND DISPENSARY.—Resident Medical Officer, unmarried. Salary £100 per annum, with board, lodging, and laundry.

NORFOLK EDUCATION COMMITTEE.—Assistant Medical Officer. Salary £250 per annum.

NOTTINGHAM GENERAL HOSPITAL.—Assistant House Surgeon. Salary £100 per annum, with board, residence, and laundry.

PLYMOUTH, SOUTH DEVON AND EAST CORNWALL HOSPITAL.—House Physician for six months. Salary £75 per annum, with board, residence, and washing.

PRESTON, COUNTY ASYLUM, Whittingham.—Assistant Medical Officer, unmarried. Salary £150 per annum, with board, apartments, and washing.

READING EDUCATION COMMITTEE.—Assistant School Medical Officer. Salary £250 per annum.

ROYAL AUSTRALIAN NAVY.—Surgeons.

ROYAL COLLEGE OF PHYSICIANS.—Milroy Lecturer.

ROYAL EAR HOSPITAL, Soho.—Honorary Assistant Anæsthetist. Also House Surgeon. Salary £40 per annum.

ROYAL EYE HOSPITAL, Southwark, S.E.—Junior House Surgeon for six months. Salary £50 per annum, with board and residence. Also Clinical Assistants.

SCARBOROUGH, BOROUGH OF.—Medical Officer of Health. Salary £350 per annum.

SEAMEN'S HOSPITAL SOCIETY, DREADNOUGHT HOSPITAL, Greenwich.—Medical Registrar. Salary £100 per annum, with luncheon.

STOCKPORT INFIRMARY.—Junior House Surgeon. Salary £80 per annum, with board, washing, and residence.

SWANLEY JUNCTION, KENT, WHITE OAK OPHTHALMIA SCHOOL.—Assistant Medical Officer. Salary £200 per annum.

UNIVERSITY COLLEGE HOSPITAL, Gower-street, W.C.—Obstetric Registrar.

UNIVERSITY OF LONDON.—Examiners.

WAKEFIELD GENERAL HOSPITAL.—Second House Surgeon, unmarried. Salary £100 per annum, with board, lodging, and washing.

WELLS, SOMERSET AND BATH ASYLUM.—Second Assistant Medical Officer. Salary £135 per annum, with board, lodging, washing, and attendance.

WEST BROMWICH AND DISTRICT HOSPITAL.—Assistant Resident House Surgeon, unmarried. Salary £75 per annum, with board, residence, and washing.

WEST LONDON HOSPITAL, Hammersmith-road, W.—House Physician for six months. Board, lodging, and laundry provided. Also Dermatologist.

WESTMINSTER HOSPITAL, Broad Sanctuary, S.W.—Fourth Assistant Physician.

WESTMINSTER HOSPITAL MEDICAL SCHOOL, Caxton-street, S.W.—Lecturer on Tropical Diseases.

WESTON-SUPER-MARE HOSPITAL.—House Surgeon, unmarried. Salary £100 per annum, with board and residence.

THE Chief Inspector of Factories, Home Office, London, S.W., gives notice of vacancies as Certifying Surgeons under the Factory and Workshop Acts at Nottingham, North, in the county of Nottingham; and at Spalding, in the county of Lincoln.

THE Private Secretary at the Home Office gives notice of a vacancy for a Medical Referee under the Workmen's Compensation Act, 1906, for Llanfyllin and Welshpool County Courts.

Births, Marriages, and Deaths.

BIRTHS.

EDE.—On Nov. 9th, at College-yard, Worcester, the wife of W. E. Moore Ede, M.D., of a son.

HUTCHISON.—On Nov. 18th, at Queen Anne-street, W., to Dr. and Mrs. Robert Hutchison—a son.

MUSSEN.—On Nov. 13th, at Abercromby-square, Liverpool, the wife of Dr. A. A. Mussen, of a son.

RUSSELL.—On Nov. 12th, at Osman House, Fortis Green, East Finchley, N., the wife of J. Dill Russell, B.S. Lond., F.R.C.S. Eng., of a son.

WALKER.—On August 4th, at Naini-Tal, U.P., India, the wife of Major J. N. Walker, I.M.S., of a son.

MARRIAGES.

BENSON—WISHAW.—On Nov. 11th, at Kilmeradon Parish Church John R. Benson, F.R.C.S., of Circus House, Bath, to Enid, sixth daughter of Mr. and Mrs. James Wishaw, of Charlton House, Kilmersdon, and St. Petersburg.

JOHNSTON—HONEYMAN.—On Nov. 12th, at St. George's Church, Hanover-square, Lieutenant-Colonel C. A. Johnston, I.M.S., to Isabel Mary, eldest daughter of the late Dr. J. H. Honeyman, of Auckland, New Zealand, and Mrs. Bruce-Porter.

DEATHS.

BARRITT.—On Nov. 13th, at 15, High-street, Spalding, Gilbert Lacy Barritt, M.R.C.S., L.R.C.P., third son of the late John Barritt, and grandson of the late Gilbert Lacy, of Lacy House, Eastwood, Todmorden, Yorkshire.

BLICK.—On Nov. 16th, at 169, Perry Vale, Forest Hill, London, Graham T. B. Blick, J.P., M.D., M.R.C.S. Eng., L.R.C.P. Lond., L.S.A., of Broome, West Australia, aged 44, son of the late Thomas E. Blick, M.R.C.S. Eng., L.S.A., of Ilslip, Oxfordshire. Funeral took place on Nov. 21st at Golder's Green.

N.B.—A fee of 5s. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Notes, Short Comments, and Answers to Correspondents.

AN EARLY INSTANCE OF MEDICINAL SMOKING.

MENTION of the "paper cigar" is, of course, familiar to readers of George Borrow's "Bible in Spain," and it would indeed appear as if this form of smoking is of venerable antiquity. Though paper was unknown to the natives of North America in the days of Columbus, we know from the descriptions of the Spanish Americanists that they smoked tobacco wrapped in maize leaves, and that the Caribs used a kind of double pipe, inhaled through the nostrils, in their sacrificial ceremonies. In an article by Dr. Charles Singer in the *Annals of Tropical Medicine and Parasitology* for October there is an interesting woodcut reproduced from Thevet's "France Antarctique," published in Paris in 1558, the year, according to the "Encyclopædia Britannica," in which tobacco was introduced into Europe. This cut represents a man being cured of yaws by suction. One of his attendants, a naked Indian, holds in his mouth what appears to be a smoking cigar or cigarette, unless it be one of the double pipes above referred to. The point is that it is held in the mouth, not in the nose, and that it is being smoked. It may very well be the earliest pictorial representation of smoking. The sores of yaws and syphilis were washed out with tobacco juice in South Carolina in the eighteenth century, and we are at liberty to infer that smoking had for long been resorted to as a cure for these diseases. James I., in the famous "Counterblaste to Tobacco," avers that tobacco, "a common herb," "was first found out by some of the barbarous *Indians*, to be a Preservative, or Antidot against the Pockes." "As from them was first brought into Christendome, that most detestable disease, so from them likewise was brought this use of *Tobacco*, as a stinking Antidot, for so corrupted and execrable a Maladie, the stinking suffumigation whereof they yet use against that disease, making so one canker or venime to eate out another." There can be little doubt that at the time of its introduction into England smoking was regarded by the mass of the people as a sign that the smoker was endeavouring to cure himself of a nameless complaint. Hence, perhaps, the origin of the prejudice against the habit which still lingers in many quarters. That smoking was only condemned on the ground that it tainted the breath is improbable, in view of the fact that the old anti-tobacconists were great drinkers, and not at all careful about the purity of their *haleine*.

FIJI LEPER SETTLEMENTS.

Mr. Eyre Hutson, C.M.G., Colonial Secretary and Deputy-Governor of the Fiji Islands, reporting to the Home Government on the Blue Book of the colony for the year 1911, states that the population according to the last census amounts to 139,541—an increase of 19,417 as compared with the census of 1901. The total rainfall recorded at Suva during the year 1911 was 108·346 inches. The highest temperature in the shade was 95·2° F. on Jan. 3rd, and the lowest 53·1° on July 10th.

The Colonial Hospital, Suva, and the principal medical institution in the colony, is under the charge of a resident medical officer, assisted by a matron, two staff nurses, one graduate nurse, and six pupil nurses, the whole being supervised by the chief medical officer, Dr. G. W. A. Lynch. Admissions during 1911 amounted to 2035, of whom 442 were Europeans. A branch hospital has been erected at Levuka, and is under the charge of the district medical officer, assisted by a matron. This institution provides for the treatment of Europeans as well as natives living in the district. There are eight provincial hospitals for the treatment of native Fijians. These are supervised by Government medical officers. The number of admissions to these provincial hospitals during 1911 was 5855. The lunatic asylum at Suva is under the charge of a European attendant, and the chief medical officer is the superintendent of the asylum. During 1911 there were 15 admissions and 5 discharges, leaving 29 inmates at the close of the year.

On the leper station at Bega expenditure was incurred to the amount of £2665 during 1911. At the end of 1910 there were 35 patients in segregation, and these had been transferred to the new asylum at Makogai during the months of November and December. On Dec. 31st there were 40 lepers comfortably installed on the island. The work of collection and transportation of lepers previously residing in all parts of the group is now nearing completion. A large sum of money has been expended on the erection of buildings, the draining and cultivation of land, and the purchase and importation of stock. Considerable progress has been made in establishing herds of cattle, sheep, goats, and pigs to be used as food for the asylum. As no comprehensive report descriptive of the new institution has hitherto been published a detailed account of it is now given. The island of Makogai, lying to the eastward of the main island of Vitilevu, some 18 miles north-east of Levuka and about 70 miles from Suva, contains approximately an area of 2075 acres. The island, being circular in shape, rises near the centre to a height of some 800 feet. Coast lands are flat, and it is upon these that the various settlements for the inmates have been established. Here, also, have been placed the paddocks in which stock is run, and the richer portions of these lands are utilised for the planting of native foods, rice, &c. Makogai, formerly used as a cocoanut plantation and cattle run, was some three years ago purchased by Government. At the south end of the island, at a place called Nasau, are situated the station of the medical superintendent and the quarters of the European warder, mechanic, and the various native officers and labourers. There are also food plantations at Nasau and a butchery, as well as a hospital and dispensary for the workers. This station is about two miles distant from the nearest leper settlement, and is separated from the rest of the island by a high wire fence. Springs on the island provide a good water-supply for the station.

The main leper station is known as Daleci. It is connected with Nasau by a bridle track which passes through flat lands on the coast. This settlement is provided with comfortable dwellings, built of wood, suitable for the accommodation of four or five inmates. There are also larger buildings at some of the settlements for the accommodation of more than one family. To each dwelling are attached a kitchen, latrine, &c. Hospitals have been established for both males and females, quarters for European lepers, and for native medical practitioners and servants, store-rooms, and lock-up, and—some distance from the leper settlement—quarters for the two European nurses and the female native assistants. A stream some 150 feet above Daleci, in the hills, is connected by water-pipe, and distributes water to the whole settlement. Each leper is allotted a parcel of land on which, if he can do so, he is expected to plant food to supplement his ration allowance. Planting is systematically carried out with green manure crops to improve the soil. The station is supplied with an auxiliary cutter which is used for the transport of stores and mails weekly from the Port of Levuka.

CRIMINOLOGY.

STUDENTS of criminology and *curiosa* will find much to interest them in Sotheran's Catalogue, No. 730, entitled "Bibliotheca Criminalis et Juridica: Catalogue of a Collection of State and Criminal Trials" (London: Henry Sotheran and Co. 1912. Price 1s. net). It contains, of course, various editions of most of the principal notorious trials, many of which possess a definite interest from the viewpoint of medical jurisprudence. An item of special interest from an antiquarian medical point of view is the Gardner Peerage case—the Medical Evidence relative to the Duration of Human Pregnancy (1827). This, we are told, is almost the only work of Dr. Gardner, F.R.S., who is generally known as a botanist and a rolling stone. He was for many years physician to various nobles in Russia, and later was one of the pioneer travellers in Madagascar. The trial for perjury of William Mitchell, surgeon, on account of evidence given by him in an inquiry at Chelsea Hospital about a hernia quack, one Sam Lee, to whom the governors of the hospital had paid large sums of money, occurred in 1754, but the vagaries of the law of libel are such that this delicate subject must be dismissed with no more than a passing reference. The admission of modern books leads to certain incongruities, as when we find in this chamber of horrors Orme Clarke's book on the Insurance Act sandwiched between the trial of Mary Anne Clarke, mistress of the Duke of York (1809), and an account of Robert Clarke, who was executed for uttering forged notes in 1807. The catalogue receives additional value from the presence of bibliographical, biographical, and historical notes.

TURTLE FARMING.

To the Editor of THE LANCET.

SIR,—I have just read the note in THE LANCET of Sept. 14th, p. 804, about turtle farming. The experimental turtle farms which have lately been started in the Seychelles have nothing to do with the edible turtles. There are two distinct varieties of turtles found in the seas around these islands: (1) the green turtle (Chelonia mydras); and (2) the hawksbill turtle (Caretta imbricata). It is the green variety which is used for turtle soup, and the hawksbill one from which is got tortoiseshell; this variety is not used for food purposes, and is, indeed, said to be poisonous, and it is farming of this variety which has lately been started.

The green or edible variety is of comparatively small value locally (about 20*s*. to 25*s*. each), the length of the voyage precluding the possibility of exporting them alive to Europe, unless vessels with specially constructed tanks were used. There is, however, a sort of cartilaginous material between the flesh and shell of these turtle which when dried is known under the name of "calipee"; this is exported and is made use of in the making of soup; there is a thin papery layer on the outer side of the shell which can be made use of as a sort of false tortoiseshell veneer, otherwise the shell is valueless. The flesh when the reptile has been freshly caught is excellent when once the prejudice against the colour of the fat, which is green, has been overcome; it makes a good substitute for a beefsteak.

The hawksbill turtle is of considerable value for its shell, and each fetches from between £4 to £5. The farming consists of enclosing a piece of the sea with a cement or other barricade and putting the young turtle in the pond so made; the method of obtaining the young turtle is by watching the spot where a female has deposited her eggs, and when the eggs hatch out (after about six weeks) the young are captured as they make their way out of the sand preparatory to going into the sea. A large number of these young are destroyed by sea-birds in the ordinary way. The spot where the eggs have been deposited is denoted by the marks left in the sand by the flappers of the female when crawling up the sand to lay, and returning to the sea when she has done so. The turtle in the ponds are fed by means of pieces of raw fish cut up, although their natural food seems to be a variety of sea-weed, polyps, and probably shell-fish.

Both varieties are caught in the same ways; they are either harpooned out at sea or near the reefs whilst floating asleep on the surface or during the act of copulation, which takes place on the surface, or the female is turned whilst going ashore to lay. In the latter case the eggs are usually removed after the turtle has been killed, and are deposited in a hole artificially made in the sand. A fair proportion of these eggs hatch out.

The giant tortoise also exists in the Seychelles. This is entirely a land reptile. The shell is of no value, but the flesh, especially the liver, is looked upon as a great delicacy, and usually forms the *pièce de résistance* at wedding feasts, &c.

The word tortoiseshell is regrettable, seeing that the article known under that name does not come from a tortoise at all, but from a turtle.

I am, Sir, yours faithfully,

J. B. ADDISON, Chief Medical Officer.

Mahé, Seychelles, Oct. 21st, 1912.

CRÊME DE MENTHE AND THE ACAPNIA HYPOTHESIS.

IN a suggestive pamphlet entitled "Flatulence and Shock" (H. K. Lewis and Co., 1912, pp. 47), Dr. F. G. Crookshank has much that is interesting to say on the former topic and some dashing speculation on the latter. He suggests that in certain individuals the walls of the stomach and intestines have the power to secrete with great rapidity large volumes of gas—nitrogen, oxygen, and carbon dioxide—and that in certain cases of rapid abdominal distension neither aerophagy nor fermentation can explain the tympanites. This argument is supported with a wealth of clinical observation, most seductively exhibited. Teleostean fishes and Lanarkshire cattle are laid under contribution to buttress up a fascinating piece of reasoning, to the conclusions of which we see no grounds for refusing assent. From this moderately safe position Dr. Crookshank ventures to emerge considerably when he associates together pneumatosis, acapnia, neurasthenia, hysteria, Graves's disease, angina pectoris, duodenal ulcer, and other conditions. His flights of fancy are certainly dazzling, and it is only at the end of the section on flatulence that he descends to earth again. Even then he takes away one's breath by recommending for "neurotic flatulence and eructations with air gulping, a bottle of the very best crême de menthe, sipped slowly and steadily until you are better."

The section on shock is as pyrotechnic as that upon flatulence, and the ratiocination just as ingenious. The author seeks to reconcile Crile and Yandell Henderson, whose hypotheses of shock are generally supposed to be mutually destructive, by regarding acapnia as a manifestation of shock instead of a cause of it. The practical upshot of a clever train of allusion and analogy would seem to be that traumatic neurasthenia, delayed shock, and downright malingering are so closely linked together that they may safely be regarded as parts of the same process. Whether Dr. Crookshank takes himself seriously, or intends by irony to establish a *reductio ad absurdum*, his readers are left to find out for themselves. His trains of thought and argument are certainly exciting, as might be his remedy for flatulence.

AN IODINE CONTAINER FOR USE IN EMERGENCY.

Mr. H. W. Spaight, L.R.C.P. & S. Irel., writes: "To overcome the difficulty of carrying a solution of iodine in safety, for use in accident or emergency operation cases, Messrs. Phillip Harris and Co., of Birmingham, have, at my suggestion, put up the solution in a glass capsule which can be safely carried in the bag or pocket. The solution of iodine is enclosed in a capsule surrounded by a layer of lint in the manner in which nitrite of amyl is carried. When required the glass is crushed between the fingers—if held at the ends the fingers will not be stained—and the iodine saturated lint brushed over the required part."

A NOVEL BOOKMARKER.

A VERY ingenious contrivance, intended for a bookmarker, but incidentally susceptible of many uses, has been submitted to us by Dr. J. A. Calantarients, of Scarborough. It consists of a thin spearhead of leather, on one side of which is some adhesive substance. The slightest pressure will cause the spearhead to adhere to any given spot in a book, thus indicating precisely where the interruption occurred or calling attention to a reference. It can be peeled off with equal ease, and leaves absolutely no trace behind it on the page. It can be used repeatedly, and when the adhesiveness begins to fade it can be easily renewed by a simple process. These markers are made in various colours, thereby enabling them to be made use of for classifying as well as for merely indicating purposes. It can also be used to facilitate the turning over of music and for following routes, whether of military operations, motor tours, or what not, on a map. Doubtless many other uses will suggest themselves. The markers are sold on cards containing a dozen, price 1s.

BAD KISSINGEN.

THE official management of the Baths of Kissingen and Bocklet inform us that in consequence of requests received from many quarters the treatment by mineral waters and baths will begin next year on March 15th, instead of as formerly on April 1st.

Mr. W. Rushton.—The inquirer should be told that such a course of instruction would be most undesirable.

Anxious.—The answer can only be given by a medical man after examination.

COMMUNICATIONS not noticed in our present issue will receive attention in our next.

A DIARY OF CONGRESSES.

THE following Congresses, Conferences, and Exhibitions are announced for 1912:—

Nov. 25th-30th (London, Olympia).—Third International Cycle, Motor-cycle, &c., Exhibition.
Dec. 31st-Jan. 11th, 1913 (London, Olympia).—Children's Welfare Exhibition.

In 1913:—
(Easter week) (Berlin).—Fourth International Congress for Physiotherapy.
April 26th (Ghent) (opens).—International Exhibition.
Aug. 6th-12th.—(London).—Seventeenth International Congress of Medicine.
Sept. 2nd-6th (Groningen).—International Physiological Congress.
" 22nd-28th (Milan).—Fourteenth International Anti-alcoholic Congress.
September (Birmingham).—British Association.
(London).—Historical Medical Exhibition. (Organised by Mr. Henry S. Wellcome.)
(London).—International Historical Congress.
(Chicago).—Congress of the International Association of Refrigeration.
(Washington).—Congress of American Physicians and Surgeons.
(Paris).—Congress of Physical Education.
(Paris).—Congress of the Royal Institute of Public Health.
(Buffalo).—Fourth International Congress of School Hygiene.

In 1914:—
(Vienna).—Third International Congress for Professional Diseases.
(Auckland, N.Z.).—Australasian Medical Congress.
(St. Petersburg).—Third Mendeléeff Congress of Pure and Applied Chemistry and Physics.
(Washington, D.C.).—International Congress of Americanists.
(London).—International Dental Congress.
(Paris).—Fourth International Medical Congress on Industrial Accidents.

METEOROLOGICAL READINGS.

(Taken daily at 8.30 a.m. by Steward's Instruments.)

THE LANCET Office, Nov. 20th, 1912.

Date.	Barometer reduced to Sea Level and 32° F.	Direction of Wind.	Rainfall.	Solar Radio in Vacuo.	Maximum Temp. Shade.	Min. Temp.	Wet Bulb.	Dry Bulb.	Remarks.
Nov. 14	29·83	N.	0·03	54	45	40	41	43	Overcast
" 15	30·11	N.	...	55	50	42	41	43	Overcast
" 16	30·17	N.	0·02	53	51	43	48	49	Overcast
" 17	30·16	S.W.	0·04	51	50	46	46	48	Overcast
" 18	30·08	W.	...	51	48	41	41	41	Foggy
" 19	30·14	N.W.	0·01	57	50	38	41	41	Fine
" 20	30·10	W.	...	56	50	41	42	44	Fine

The following journals, magazines, &c., have been received.—Medical Chronicle, American Medicine, Deutsche Zeitschrift für Nervenheilkunde, Archiv für Experimentelle Pathologie und Pharmakologie, Revista de la Sociedad Médica Argentina, Revue de Gynécologie et de Chirurgie Abdominale, Birmingham Medical Review, Middlesex Hospital Gazette, St. Thomas's Hospital Gazette, Bulletin of the Johns Hopkins Hospital, British Journal of Dental Science, Archives Internationales de Neurologie, South African Medical Record, Therapist, British Journal of Dermatology, Science Progress, Tropical Diseases Bulletin, Canadian Medical Association Journal, Journal of Mental and Nervous Diseases, American Journal of Obstetrics, Revista Dental.

Medical Diary for the ensuing Week.

SOCIETIES.

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.

MONDAY.

SECTION OF ODONTOLOGY (Hon. Secretaries—Stanley P. Mummery, Robert McKay): at 8 P.M.

Mr. J. Howard Mummery: A Brief Supplementary Note on the Nerves of the Dentine.

Discussion:

On Orthodontics in Modern Practice (to be opened by Mr. J. H. Badcock).

TUESDAY.

SECTION OF MEDICINE (Hon. Secretaries—Robert Hutchison, H. Batty Shaw): at 5.30 P.M.

Papers:

Dr. Sidney Phillips: Case of Fatal Acute Ulceration Limited to the Small Intestine.

Dr. C. E. Lea: Four Cases of Auricular Tachycardia.

MEDICAL SOCIETY OF LONDON, 11, Chandos-street, Cavendish-square, W.

MONDAY.—8 P.M., Clinical Evening. Cases will be exhibited by Sir W. Watson Cheyne, Bart., C.B., Dr. Palmer, Dr. Poynton, Mr. P. B. Roth, Mr. Willmott Evans, and others.

MEDICO-LEGAL SOCIETY, 11, Chandos-street, Cavendish-square, W.

TUESDAY.—8.30 P.M., Dr. R. Jones, J.P.: The Question of Legal Responsibility in Relation to Some States of Mental Weakness.

HUNTERIAN SOCIETY, London Institution, Finsbury-circus, E.C.

WEDNESDAY.—8.30 P.M., Council Meeting. 9 P.M., Dr. W. M. Ettles: Special Lantern Demonstration of Diseases of the Eye.

CHILD STUDY SOCIETY, LONDON, Royal Sanitary Institute, 90, Buckingham Palace-road, S.W.

THURSDAY.—7.30 P.M., Discussion on the Outlook of the Adolescent towards Livelihood (opened by Mr. A. H. Paterson and Mrs. M. O'Brien Harris, D.Sc.).

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

MEDICAL GRADUATES' COLLEGE AND POLYCLINIC, 22, Chenies-street, W.C.

MONDAY.—4 P.M., Dr. H. MacCormac: Clinique (Skin). 5.15 P.M., Lecture:—Mr. E. B. Waggett: Points in Everyday Practice.

TUESDAY.—4 P.M., Dr. J. Collier: Clinique (Medical). 5.15 P.M., Lecture:—Dr. C. Riviere: Modern Methods in the Diagnosis of Phthisis.

WEDNESDAY.—4 P.M., Sir A. Pearce Gould, K.C.V.O.: Clinique (Surgical). 5.15 P.M., Lecture:—Dr. J. Collier: Certain Points in the Treatment of Common Nervous Diseases.

THURSDAY.—4 P.M., Mr. G. Taylor: Clinique (Surgical). 5.15 P.M., Lecture:—Dr. G. M. Holmes: Diseases of the Optic Thalamus.

FRIDAY.—4 P.M., Dr. D. Grant: Clinique (Ear, Nose, and Throat). 5.15 P.M., Lecture:—Dr. W. Wingrave: Cerebrospinal Fluid.

POST-GRADUATE COLLEGE, West London Hospital, Hammersmith-road, W.

MONDAY.—10 A.M., Dr. Simson: Diseases of Women. 11 A.M., Mr. Addison: Demonstration of Minor Operations 12 noon, Dr. Bernstein: Pathological Demonstration. 2 P.M., Medical and Surgical Clinics. X Rays. Operations. Mr. Dunn: Diseases of the Eye. 5 P.M., Lecture:—Dr. Robinson: Gynæcological or Obstetrical Subjects.

TUESDAY.—10 A.M., Dr. Robinson: Gynæcological Operations. 10.30 A.M., Mr. T. Gray: Demonstration of Fractures, &c. 11.30 A.M., Surgical Registrar: Demonstration of Cases in Wards. 2 P.M., Medical and Surgical Clinics. X Rays. Operations. Dr. Davis: Diseases of the Throat, Nose, and Ear. 2.30 P.M., Dr. Abraham: Diseases of the Skin 5 P.M., Lecture:—Mr. T. Gray: Static Deformities, their Pathology and Treatment.

WEDNESDAY.—10 A.M., Dr. Saunders': Diseases of Children. Dr. Davis: Operations of the Throat, Nose, and Ear. 10.30 A.M., Medical Registrar: Demonstration of Cases in Wards. 2 P.M., Medical and Surgical Clinics. X Rays. Operations. Mr. B. Harman: Diseases of the Eye. Dr. Simson: Diseases of Women. 5 P.M., Lecture: Dr. Beddard: Practical Medicine.

THURSDAY.—10 A.M., Dr. Simson: Gynæcological Demonstration. 12.15 P.M., Lecture:—Dr. G. Stewart: Neurological Cases. 2 P.M., Medical and Surgical Clinics. X Rays. Operations. Mr. Dunn: Diseases of the Eye. 5 P.M., Lecture:—Mr. Baldwin: Practical Surgery.

FRIDAY.—10 A.M., Dr. Robinson: Gynæcological Operations. 10.30 A.M., Lecture:—Dr. Owen: Practical Medicine. 12.15 P.M., Lecture:—Dr. Bernstein: Clinical Pathology. 2 P.M., Medical and Surgical Clinics. X Rays. Operations. Dr. Davis: Diseases of the Throat, Nose, and Ear. 2.30 P.M., Dr. Abraham: Diseases of the Skin. 5 P.M., Lecture:—Mr. R. H. Cole: General Paralysis of the Insane.

SATURDAY.—10 A.M., Dr. Saunders: Diseases of Children. Dr. Davis: Operations of the Throat, Nose, and Ear. Mr. B. Harman: Diseases of the Eye. 10.30 A.M., Surgical Registrar: Demonstration of Cases in Wards. 2 P.M., Medical and Surgical Clinics. X Rays. Operations.

LONDON SCHOOL OF CLINICAL MEDICINE, Dreadnought Hospital, Greenwich.

MONDAY.—Out-patient Demonstrations:—10 A.M. Dr. G. Holmes: Medical. Mr. H. Curtis: Surgical. 12 noon, Mr. G. N. Biggs: Throat, Nose, and Ear.—2.15 P.M., Mr. W. Turner: Surgery. 3 P.M., Mr. W. Turner: Operations. 3.15 P.M., Sir Dyce Duckworth: Medicine. 4.15 P.M., Mr. R. Lake: Ear and Throat.

TUESDAY.—Out-patient Demonstrations:—10 A.M., Dr. C. Singer: Medical. Mr. A. J. Walton: Surgical. 12 noon, Dr. H. MacCormac: Skin.—2 P.M., Mr. L. McGavin: Operations. 2.15 P.M., Mr. R. Carling: Surgery. 3.15 P.M., Dr. G. Rankin: Medicine. 4.15 P.M., Sir M. Morris: Skin Clinique (alternate Tuesdays). 4.30 P.M., Special Lecture:—Mr. A. Carless: Some Renal Emergencies.

WEDNESDAY.—Out-patient Demonstrations: 10 A.M., Dr. F. Langmead: Medical. Mr. P. Cole: Surgical. 11 A.M., Mr. R. E. Bickerton: Eye.—2 P.M., Mr. L. V. Cargill or Mr. Choyce: Operations. 2.15 P.M., Dr. F. Taylor: Medicine. 3.15 P.M., Mr. Cargill: Eye Clinique. 2.15 P.M., Mr. C. C. Choyce: Surgery.

THURSDAY.—Out-patient Demonstrations:—10 A.M., Dr. G. Holmes: Medical. Mr. H. Curtis: Surgical. 12 noon, Mr. G. N. Biggs: Throat, Nose, and Ear.—2 P.M., Mr. R. Carling or Mr. W. Turner: Operations. Dr. A. Davies: Pathological Demonstration. 3.15 P.M., Dr. R. Wells: Medicine. 4.30 P.M., Special Lecture:—Prof. R. T. Hewlett: Hæmorrhage, the Hæmorrhagic Diathesis: Paroxysmal Hæmaglobinuria.

FRIDAY.—Out-patient Demonstrations:—10 A.M., Dr. C. Singer: Medical. Mr. A. J. Walton: Surgical. 12 noon, Dr. H. MacCormac: Skin.—2 P.M., Mr. L. McGavin: Operations. 2.15 P.M., Sir John Rose Bradford; Medicine 3.15 P.M., Mr. L. McGavin: Surgery.

SATURDAY.—Out-patient Demonstrations: 10 A.M., Dr. F. Langmead: Medical. Mr. P. Cole: Surgical. 11 A.M., Mr. R. E. Bickerton: Eye.—10 A.M., Dr. W. Steuart: Radiography.

NORTH-EAST LONDON POST-GRADUATE COLLEGE, Prince of Wales's General Hospital, Tottenham, N.

MONDAY.—Clinics:—10.30 A.M., Surgical Out-patient (Mr. E. Gillespie). 2.30 P.M., Medical Out-patient (Dr. T. R. Whipham); Nose, Throat, and Ear (Mr. H. D. Gillies). 3 P.M., Clinical Pathology and Pathological Demonstration (Dr. W. H. Duncan).

TUESDAY.—Clinic; 2.30 P.M., Operations. Clinics:—Medical Out-patient (Dr. A. G. Auld); Surgical (Mr. Howell Evans); Gynæcological (Dr. A. E. Giles). 3.30 P.M., Medical In-patient (Dr. A. J. Whiting). 4.30 P.M., Lecture:—Mr. A. G. Auld: Prognosis in Pulmonary Tuberculosis.

WEDNESDAY.—Clinics:—2 P.M., Throat Operations (Mr. Gillies). 2.30 P.M., Children's Out-patient (Dr. T. R. Whipham); Skin (Dr. G. N. Meachen); Eye (Mr. R. P. Brooks). 3 P.M., X Rays (Mr. W. Steuart); Clinical Pathology and Pathological Demonstration (Dr. W. H. Duncan). 5.30 P.M., Eye Operations (Mr. Brooks).

THURSDAY.—2.30 P.M., Gynæcological Operations (Dr. A. E. Giles). Clinics:—Medical Out-patient (Dr. A. J. Whiting); Surgical (Mr. Carson). 3 P.M., Medical In-patient (Dr. G. P. Chappel). 4.30 P.M., Lecture:—Mr. E. Gillespie: Tuberculous Bone and Joint Lesions, their Diagnosis and Treatment.

FRIDAY.—2.30 P.M., Operations. Clinics:—Medical Out-patient (Dr. A. G. Auld): Surgical (Mr. E. Gillespie); Eye (Mr. R. P. Brooks). 3 P.M., Medical In-patient (Dr. R. M. Leslie); Clinical Pathology and Pathological Demonstration (Dr. W. A. Duncan).

ROYAL HOSPITAL FOR DISEASES OF THE CHEST, City-road, E.C.

MONDAY.—1.30 P.M., Department for the Prevention of Consumption. 2 P.M., Out-patient Department—Room III., Dr. M. Leslie; Room IV., Dr. S. Thompson. 4 P.M., Wards, Dr. M. Leslie. 4.30 P.M. to 5.30 P.M., Lecture Hall, Lecture-Demonstration.

TUESDAY.—1.30 P.M., Department for the Prevention of Consumption. 2 P.M., Out-patient Department—Room III., Dr. Phear; Room IV., Dr. B. King. 2 P.M., Operations and Throat Clinic, Mr. A. Evans. 3 P.M., Wards, Dr. White. 3.30 P.M., Wards, Dr. Phear. 4.30 P.M., to 5.30 P.M., Lecture Hall, Lecture-Demonstration.

WEDNESDAY.—2 P.M., Wards, Dr. A. Davies. Out-patient Department—Room III., Dr. Drysdale; Room IV., Dr. Kellie. 4 P.M., Wards, Dr. Drysdale. 4.30 P.M., Roentgen Ray Department, Dr. Jordan. 7 P.M., Department for the Prevention of Consumption.

THURSDAY.—9.30 A.M., Dental Department, Mr. G. Thomson. 1.30 P.M., Department for the Prevention of Consumption. 2 P.M., Out-patient Department—Room III., Dr. M. Leslie; Room IV., Dr. S. Thompson. 4.30 P.M. to 5.30 P.M., Lecture Hall, Lecture-Demonstration.

FRIDAY.—1.30 P.M., Department for the Prevention of Consumption. 2 P.M., Wards, Dr. Calvert. Out-patient Department—Room III., Dr. Phear; Room IV., Dr. B. King. 3.30 P.M., A Special Clinical Demonstration by one of the Out-patient Physicians.

SATURDAY.—10 A.M., Out-patient Department—Room III., Dr. Drysdale; Room IV., Dr. Kellie. 11.30 A.M., Roentgen Ray Department, Dr. Jordan.

HOSPITAL FOR SICK CHILDREN, Great Ormond-street, W.C.

THURSDAY.—4 P.M., Dr. Thursfield: The Thymus Gland.

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC, Queen-square, Bloomsbury, W.C.

TUESDAY AND FRIDAY.—3.30 P.M., Clinical Lecture:—Dr. G. Stewart: Disease of the Pituitary Body.

HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Brompton, S.W.

WEDNESDAY.—4.30 P.M., Lecture:—Dr. Fenton: Demonstration of Cases.

QUEEN'S HOSPITAL FOR CHILDREN, Board Room of the Hospital, Hackney-road, N.E.

WEDNESDAY.—4 P.M., Dr. J. L. Bunch: The Treatment of Some Common Skin Disorders.

LISTER INSTITUTE OF PREVENTIVE MEDICINE, Chelsea Gardens, Chelsea Bridge-road, S.W.

WEDNESDAY.—4 P.M., Lecture:—Mr. Atkin: The Electrical Method of Determining the Reaction of Fluids.

FRIDAY.—4 P.M., Lecture:—Dr. Ledingham: Some Problems of Immunity.

ST. JOHN'S HOSPITAL FOR DISEASES OF THE SKIN, 49, Leicester-square, W.C.

TUESDAY.—2 P.M., Dr. W. Griffith: The Pathology of the Skin. 6 P.M., Dr. W. K. Sibley: Electrical Treatment in Dermatology.

THURSDAY.—6 P.M., Dr. M. Dockrell: Tuberculosis of the Skin:—I., Lupus Vulgaris; II., Tuberculosis Verrucosa Cutis; III., Scrofuloderma.

ROYAL DENTAL HOSPITAL OF LONDON SCHOOL OF DENTAL SURGERY.

TUESDAY.—6 P.M., Mr. N. G. Bennett: Malocclusion of the Deciduous Dentition. (Post-Graduate Lecture.)

ANCOATS HOSPITAL, Manchester.

THURSDAY.—4.15 P.M., The Honorary Medical and Surgical Staff will give a Demonstration of Cases. (Post-Graduate Clinic.)

MANCHESTER ROYAL INFIRMARY.

TUESDAY.—4.30 P.M., Dr. Ramsbottom: Salvarsan in Syphilis and Parasyphilis. (Post-Graduate Clinic.)

FRIDAY.—4.30 P.M., Mr. Telford: Modern Methods in the Treatment of Tuberculosis of the Spine and Joints. (Post-Graduate Clinic.)

SALFORD ROYAL HOSPITAL.

TUESDAY.—Mr. G. Wright: The Surgical Treatment of Diseases of the Stomach. (Post-Graduate Demonstration.)

For further particulars of the above Lectures, &c., see Advertisement Pages.

OPERATIONS.

METROPOLITAN HOSPITALS.

MONDAY (25th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), St. George's (2 P.M.), St. Mary's (2.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), Chelsea (2 P.M.), Samaritan (Gynæcological, by Physicians, 2 P.M.), Soho-square (2 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Royal Free (2 P.M.), Guy's (1.30 P.M.), Children, Gt. Ormond-street (9 A.M.), St. Mark's (2.30 P.M.), Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.).

TUESDAY (26th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), West London (2.30 P.M.), University College (2 P.M.), St. George's (1 P.M.), St. Mary's (1 P.M.), St. Mark's (2.30 P.M.), Cancer (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Soho-square (2 P.M.), Chelsea (2 P.M.), Children, Gt. Ormond-street (9 A.M. and 2 P.M.), Tottenham (2.30 P.M.), Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.), Royal National Orthopædic (9.30 A.M. and 4 P.M.).

WEDNESDAY (27th).—St. Bartholomew's (1.30 P.M.), University College (2 P.M.), Royal Free (2 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. Thomas's (2 P.M.), London (2 P.M.), King's College (2 P.M.), St. George's (Ophthalmic, 1 P.M.), St. Mary's (2 P.M.), St. Peter's (2 P.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Gt. Northern Central (2.30 P.M.), Westminster (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Cancer (2 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Royal Ear (2 P.M.), Children, Gt. Ormond-street (9.30 A.M., Dental, 2 P.M.), Tottenham (Ophthalmic, 2.30 P.M.), West London (2.30 P.M.), Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.).

THURSDAY (28th).—St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), University College (2 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), London (2 P.M.), King's College (2 P.M.), Middlesex (1.30 P.M.), St. Mary's (2.30 P.M.), Soho-square (2 P.M.), North-West London (2 P.M.), Gt. Northern Central (Gynæcological, 2.30 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Royal National Orthopædic (9 A.M. and 3.30 P.M.), Royal Ear (2 P.M.), Children, Gt. Ormond-street (9 A.M. and 2 P.M. Aural and Ophthalmic), Tottenham (Gynæcological, 2.30 P.M.), West London (2.30 P.M.), Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.).

FRIDAY (29th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), King's College (2 P.M.), St. Mary's (2 P.M.), Ophthalmic (10 A.M.), Cancer (2 P.M.), Chelsea (2 P.M.) Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Royal National Orthopædic (3.30 P.M.) Soho-square (2 P.M.), Children, Gt. Ormond-street (9 A.M. and 2 P.M.), Tottenham (2.30 P.M.), St. Peter's (2 P.M.), Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.).

SATURDAY (30th).—Royal Free (9 A.M.), London (2 P.M.), Middlesex (1.30 P.M.), St. Thomas's (2 P.M.), University College (9.15 A.M.), Charing Cross (2 P.M.), St. George's (1 P.M.), St. Mary's (10 A.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Children, Gt. Ormond-street (9.30 A.M.), West London (2.30 P.M.).

At the Royal Eye (2 P.M.), the Royal London Ophthalmic (10 A.M.), the Royal Westminster Ophthalmic (1.30 P.M.), and the Central London Ophthalmic (2 P.M.) Hospitals operations are performed daily. At the Western Ophthalmic Hospital operations are performed on Monday, Tuesday, Thursday, and Friday at 3 P.M., and on Wednesday and Saturday at 11 A.M.

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It is most important that communications relating to the Editorial business of THE LANCET should be addressed *exclusively* "TO THE EDITOR," and not in any case to any gentleman who may be supposed to be connected with the Editorial staff. It is urgently necessary that attention should be given to this notice.

It is especially requested that early intelligence of local events having a medical interest, or which it is desirable to bring under the notice of the profession, may be sent direct to this office.

Lectures, original articles, and reports should be written on one side of the paper only, AND WHEN ACCOMPANIED BY BLOCKS IT IS REQUESTED THAT THE NAME OF THE AUTHOR, AND IF POSSIBLE OF THE ARTICLE, SHOULD BE WRITTEN ON THE BLOCKS TO FACILITATE IDENTIFICATION.

Letters, whether intended for insertion or for private information, must be authenticated by the names and addresses of their writers—not necessarily for publication.

We cannot prescribe or recommend practitioners.

Local papers containing reports or news paragraphs should be marked and addressed "To the Sub-Editor."

Letters relating to the publication, sale, and advertising departments of THE LANCET *should be addressed "To the Manager."*

We cannot undertake to return MSS. not used.

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